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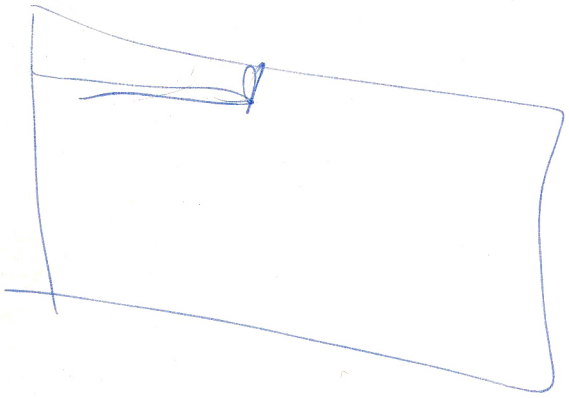
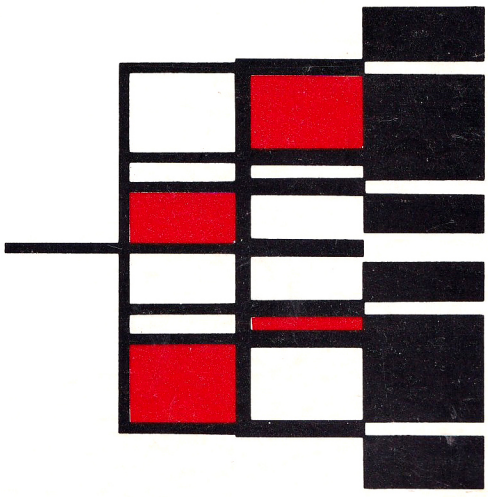
ALPHA



USERS GUIDE



compuScan INC.

ALPHA
Users Guide

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A2001.0 11-30-74

This manual is for use with machine bearing Serial No._____

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SUMMARY OF APPLICABLE ALPHA DOCUMENTS AND INFORMATION

Description	No.	Release	Contained Herein*	Separate Cover
Users Guide	A2001.0		☐	☐
Super ALPHA Code Conversion Sheet Users Manual	A2002.0	3	☐	☐
Diagnostics	A2003.0		☐	☐
Programming Manual	A2004.0		☐	☐
Edit Module EC1	A2005.0	4	☐	☐
Edit Module EB2	A2006.0	2,3	☐	☐
Margin Markup Header Sheet Guide	A2007.0	4	☐	☐
Extended Header Sheet Manual	A2008.0	4	☐	☐
Typing And Editing Guide	A2009.0		☐	☐
Keyboard Layout			☐	
LED Layout			☐	

II

* In The Appendix To This Manual.

This information is for use with machine bearing Serial No._____

CONTENTS

SECTION		PAGE
1.0	GENERAL DESCRIPTION	
1.1	Introduction	1-1
1.2	Functional Description	1-1
1.3	Physical Description	1-3
1.4	Peripheral Equipment	1-5
1.5	General Specifications	1-6
2.0	INSTALLATION	
2.1	Choosing a Site	2-1
2.2	Site Requirements	2-1
2.3	Starting Up ALPHA	2-2
3.0	OPERATION	
3.1	Introduction	3-1
3.2	Controls and Indicators	3-1
3.2.1	Resetting Top, Left and Right Margins	3-1
3.3	LED Display	3-6
3.4	Viewer Window	3-6
3.5	Inserting Copy Into Stack Feeder	3-7
3.6	Scanning Techniques	3-13
3.6.1	Scan Edit Mode	3-14
3.6.2	Scan Edit Rules	3-15
3.6.3	Scan Eidt Errors	3-16
3.6.4	Header Sheet Routines	3-17
4.0	PREPARING THE MANUSCRIPT	
4.1	Typing	4-1
4.1.1	Specifications	4-1
4.1.2	Do's and Don'ts	4-3
4.2	Deletion Symbol Editing	4-5
4.2.1	Single Delete	4-5
4.2.2	Double Delete	4-5
4.2.3	Triple Delete	4-6
4.3	Scan-Edit (Insertion) Editing	4-7
4.4	Typewriter and Paper Specifications	4-11
4.4.1	Typewriter Specifications	4-11
4.4.2	Typewriter Ribbons	4-11
4.4.3	Paper Specifications	4-12
4.4.4	Edit Marking Pens	4-12
5.0	HEADER SHEETS	
5.1	General	5-1
5.2	Header Sheets	5-1
5.2.1	Complex Code Conversions	5-6
5.3	Text Pages Using ▲ Commands	5-10
5.4	Header Module Errors	5-17
5.5	Sample Header Sheets	5-18

CONTENTS (Cont'd)

SECTION		PAGE
6.0	MAINTENANCE	
6.1	Introduction	6-1
6.2	Paper Malfunctions	6-1
6.2.1	Double Page Feeds or Paper Jams	6-1
6.2.2	Stack Feeder and Read Head Paper Ja	6-1
6.3	Alarm Functions	6-2
6.3.1	Paper Tape Warning	6-2
6.3.2	Disconnect Signal	6-3
6.4	Unexplained Stoppage - Circuit Overlo	6-3
6.4.1	Fuse Panel	6-3
6.4.2	Data Save Circuit Panel	6-5
6.5	Lubrication	6-6
6.6	Cleaning	6-6
6.6.1	Exterior Surfaces	6-6
6.6.2	Belts and Rollers	6-6
6.6.3	Paper Viewer Mirrors	6-7
6.7	Replaceable Parts	6-7
6.7.1	Accessing the Paper Handler Assembly	6-8
6.7.2	Read Head Drive Cable	6-10
6.7.3	Read Head Lamp	-13
6.7.4	Horizontal Encoder	-15
6.7.5	Vertical Encoder	16
6.7.6	Read Head Ribbon Cable	17
6.7.7	Horizontal Drive - Timing Belt	18
6.8	Adjustment Procedures	1
6.8.1	Double Page Detector	1
6.8.2	Read Head And/Or Roller Drift	3
6.9	Troubleshooting	
7.0	SPARE PARTS KIT	
7.1	General	7
	APPENDIX	
	ALPHA Program Selection Guide	A-1
	How to Distinguish ALPHA Programs	A-2

ILLUSTRATIONS

FIGURE		PAGE
1-1	ALPHA OCR System	1-0
1-2	Simplified System Block Diagram	1-2
1-3	ALPHA - Component Location	1-4
1-4	Input/Output Flow Diagram	1-6
2-1	Rear View of Cabinet	2-4
3-1	Operating Controls and Indicators	3-2
3-2	Top View of Control Console	3-8
3-3	Typical LED Character Patterns	3-9
3-4	Stack Feeder Assembly	3-10
4-1	Sample Text Page Illustrating Deletion Symbol and Scan-Edit Editing on a CompuScan Form Sheet	4-2
6-1	Fuse and Data Save Panel	6-4
6-2	Accessing the Paper Handler Assembly	6-9
6-3	Read Head Cable Drive Diagram	6-12
6-4	Left Side View - Upper Platten	6-14
6-5	Servo Motors	6-19
6-6	Double Page Detector Test Points	6-22
6-7	Drift Adjustment Potentiometers	6-25

TABLES

TABLE		PAGE
1-1	ALPHA - General Specifications	1-7
3-1	Operating Controls and Indicators	3-3
3-2	Typical Default Margins and Scanning Parameters	3-5
3-3	Characteristic LED Signals	3-11
3-4	Editing Combinations	3-15
5-1	Summary of Special Characters Used in a Code Conversion Input String	5-8
5-2	Summary of Specifiers Used in Code Conversion Output String	5-8
5-3	Summary of ▲ Commands	5-16
5-4	Header Module Errors	5-18
5-5	TTS Equivalence Chart (Numerical Sequence)	5-19
6-1	Fuses and Data Save Circuits	6-5
6-2	Troubleshooting Guide	6-26
7-1	Replaceable Spare Parts Kit	7-1

FIGURE 1-1. ALPHA OCR SYSTEM

SECTION 1.0

GENERAL DESCRIPTION

1.1 INTRODUCTION

ALPHA is a flexible, operator oriented, accurate optical character recognition system (page reader) which converts typewritten pages into machine language (see figure 1-1). The scanned text is outputted in the data codes normally required by commercial typesetting, data processing, and telecommunications.

ALPHA reads separate sheets or continuous sprocket-fed paper up to 11 inches wide and any length. It reads a wide variety of fonts, including Perry, Courier-12, OCR-A, OCR-B, European accented fonts, etc. The minimum error rate is less than one in 25,000 characters, and can be much higher depending upon the character set used and the quality of the input material.

ALPHA's major components consist of an integral microprocessor with core memory, a keyboard, scanner, stack feeder, two control panels, and a signal output unit to drive peripheral equipment. The microprocessor controls the ALPHA operation and allows the user to quickly and easily set the ALPHA to any particular set of typing rules (format) and output codes through the use of HEADER SHEETS. Formats and codes can easily be changed as required.

1.2 FUNCTIONAL DESCRIPTION (See Figure 1-2)

The following discussion of the ALPHA is intended for the operator or any other person who desires a general picture of how it functions. Many of the items touched in this discussion are more fully explained in the following sections.

ALPHA is an optical character recognition system which scans typed sheets and converts the text into a form that can be applied to numerous output devices such as paper punch, on-line phototypesetter, line printer, etc. The copy to be scanned is placed in a paper stack feeder where one sheet at a time is moved by paper rollers to a position under the read head.

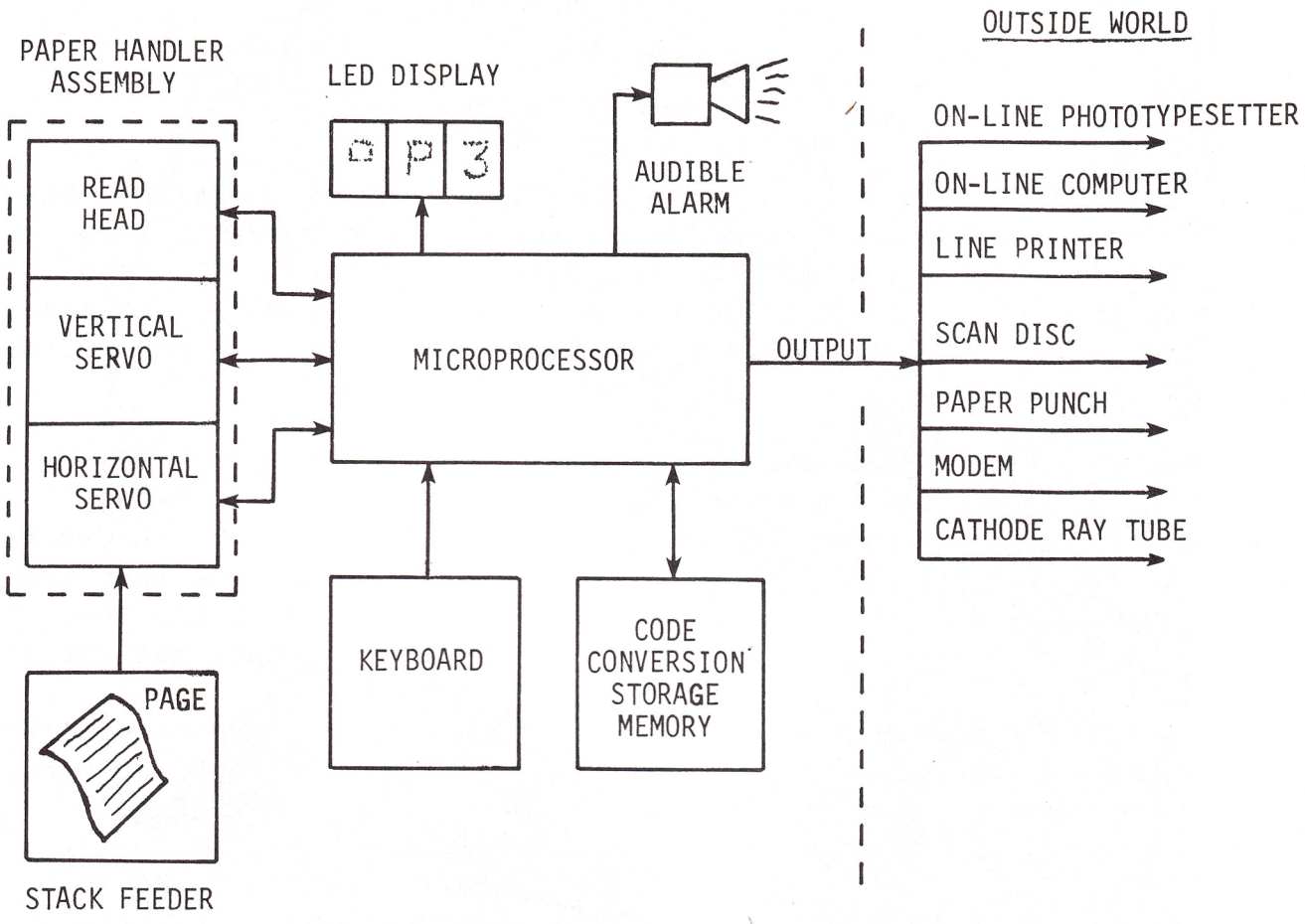


FIGURE 1-2. SIMPLIFIED BLOCK DIAGRAM

When the read head senses the presence of paper it begins to move from left to right over the paper. As one scan pass is completed (scan head is in the extreme left hand position), the paper feed controller circuit causes the paper to move forward a predetermined distance. The scan head position controller then moves the scan head to the extreme right to scan another line. This process continues until all text is scanned or an unrecognizable character is encountered (if key optics is on). This condition will cause ALPHA to stop scanning. If ALPHA stops during a scan pass an audible tone is sounded to alert the operator.

The previous actions are monitored and controlled through a specially designed microprocessor (internal computer). The microprocessor analyzes the signal provided by the read head and determines the presence of paper, text, unrecognizable characters and specially coded characters. As each character is scanned it produces an electrical matrix image which is processed and compared to characters in the reference alphabet stored in the microprocessor. If the character is not recognized (successfully compared), the processor will stop (if key optics is on) the machine and signal the operator. When this happens a mechanical pointer mounted on the read head carriage (visible through the paper viewer window) will point to the questionable character and at the same time the machines best guess will be displayed on the center element of the (3-element) LED Display. The operator can then correct the character through the keyboard and restart the scanning procedure.

The output format of ALPHA is determined by code conversion tables which are stored in the code conversion storage memory. These tables are defined by HEADER SHEETS which consist of one ore more typed sheets containing the rules which govern the scanning of text pages. The operator can alter the data in the code conversion tables by preparing new header sheets which are then scanned by the ALPHA. Once a set of Header Sheets are scanned it will reside in the memory and govern the output from the ALPHA until charged by new HEADER sheets. The output of ALPHA can be made compatible with any of the peripheral equipment specified in Figure 1-2 through individually designed interface cards. The cards are of the plug-in type and are located on the microprocessor.

1.3 PHYSICAL DESCRIPTION

The ALPHA is completely contained in a single cabinet, 46 inches in height, 28 inches wide, and 28 inches length. (Total weight is approximately 400 pounds.) The stack feeder, scanner, keyboard and control panel are located in the operating console section at the top of the cabinet. The keyboard, scanner and control panels are mounted in a hinged cover which when opened,

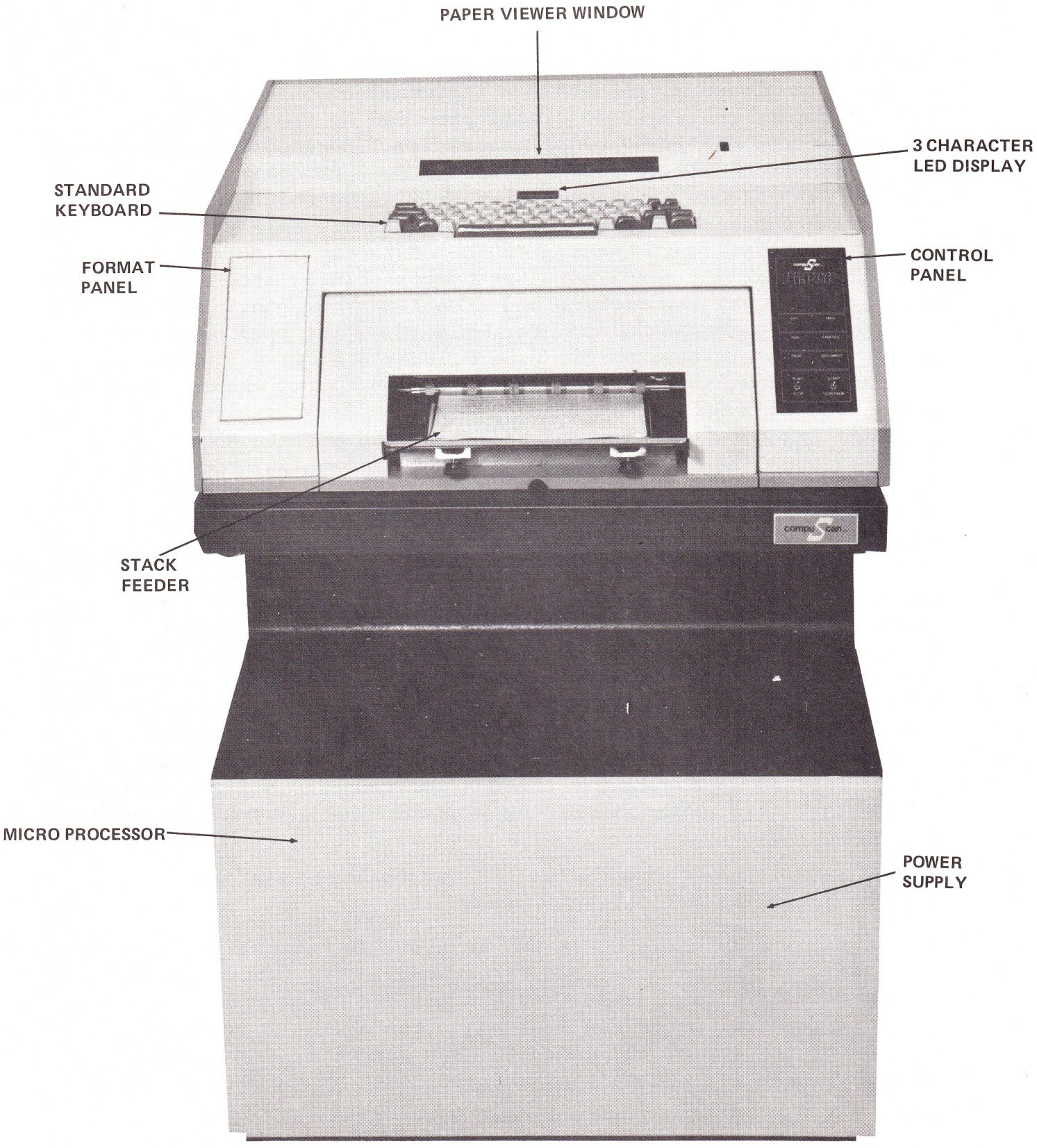


FIGURE 1-3. ALPHA - Component Location

exposes the paper drive rollers and the back of the stack feeder. The scan head and paper feed servo drive are also located in the hinged cover. (See Figure 1-3.)

The base of the cabinet contains the microprocessor, power supplies and fuses for the entire unit. The microprocessor is contained on a single vertical board which is mounted on a hinged panel behind a removable panel at the front of the base. The cabinet is mounted on four casters which allow the cabinet to be moved quickly and easily.

All cabling (power and data output) to ALPHA is located at the lower rear section of the base. AC power is connected to the unit through a cable with special male and female lockable connectors. A flat ribbon cable with a connector supplies data from ALPHA to peripheral equipment. A convenience receptacle is also located in this area for auxiliary external equipment. Fusing for the main AC input and convenience receptacles is located adjacent to these items.

1.4 PERIPHERAL EQUIPMENT

ALPHA can be connected to various peripheral equipment through interfacing. The interfacing circuits are contained on printed circuit cards which are cage mounted on the microprocessor board. (Figure 1-4 is a diagramatic flow diagram of the input and output of an ALPHA). ALPHA can interface with the following equipment:

- RS232C Modem
- Video Editing Terminals (VT)
- Line Printer
- On-Line Phototypesetter
- On-Line Computer
- Scan Disc

ALPHA can interface into various typesetting systems and typesetters such as Data General, Talstar, CSI, PDP-8, etc. For further information on a particular interface call the CompuScan Sales Department.

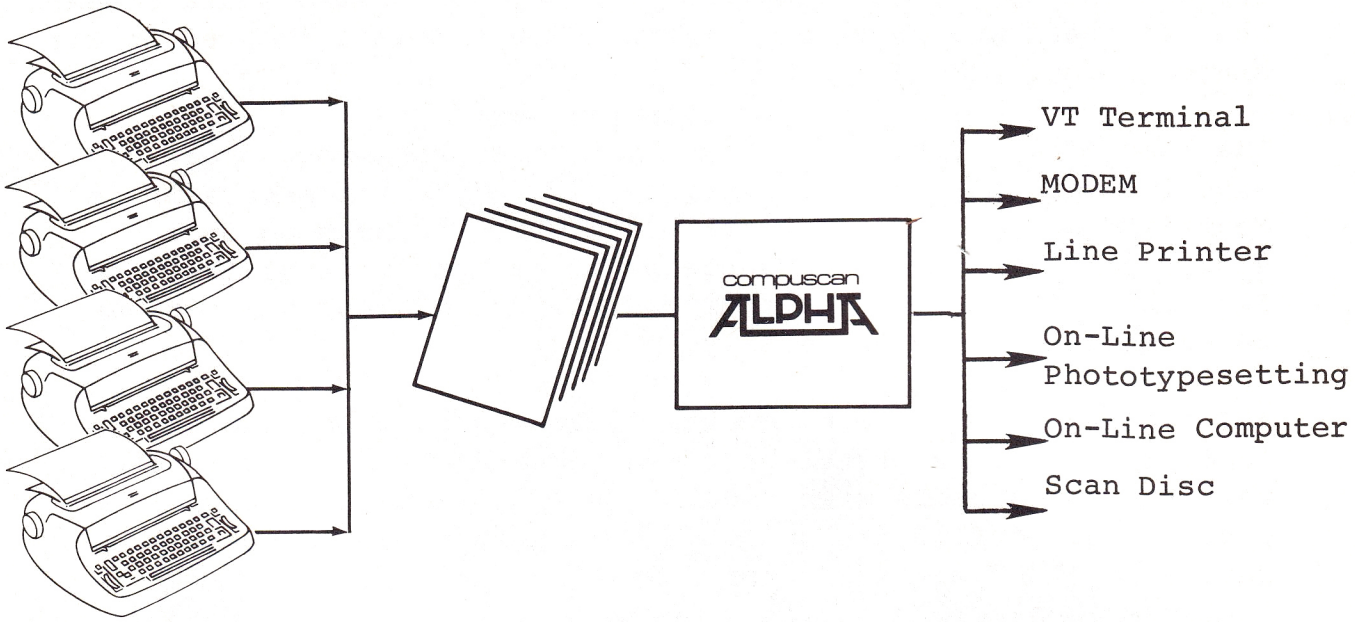


FIGURE 1-4 ALPHA INPUT/OUTPUT FLOW DIAGRAM

1.5 GENERAL SPECIFICATIONS

The general specifications for ALPHA are listed in Table 1-1. A more detailed explanation of certain specifications is provided in various sections of this manual.

TABLE 1-1 ALPHA GENERAL SPECIFICATIONS

Characteristics	Description
Character Set:	One character set is standard. A second character set can be added and selection between them made by a switch. The standard set is OCR Font No. 199 (Perry). Other fonts available are Courier-12, OCR-A (ANSI), OCR-B (ECMA-11)--all in upper and lower case, full 88 character versions. Accented fonts also available in OCR-B.
Character Pitch:	10 Characters per inch.
Reading Rate:	60 characters per second for a standard ALPHA and 120 on a high speed ALPHA throughout on 8 1/2" x 11" page containing 24 lines with 75 characters per line. Throughput varies with the size and density of typing on pages.
Paper Size:	5" x 7" to 11" x 11" paper can be fed in stacks of 50 sheets. 11" x 24" paper can be fed in single sheets. Sprocketed, continuous form fanfold paper up to 15 inches wide can be scanned.
Paper Weight:	20 pound bond up to card stock.
Non-Read Colors:	Light blue or red pen marks will not be read by the machine. (Any color that does not contain carbon will not read.)
Editing:	Key Optics--On-line correction Scan-Edit--Cross out and insertions Deletion Symbol--Deletes characters, words or lines. Margin Markup Paragraph Insertion.

TABLE 1-1 ALPHA GENERAL SPECIFICATIONS (Cont'd)

Characteristics	Description
Output Interfaces:	Standard interfaces are to a paper tape punch, BRPE, RS232C, and as a paper tape emulator to many minicomputers.
Header Sheet:	Header Sheets allow setup facility for the following items: Top Margin--1/2" min. with increments of 1/10" Left Margin--4/10" min. with increments of 1/10" Right Margin--10 1/2" max. (from left edge) with increments of 1/10" Line Finish Criteria Page Finish Criteria Set-up Code Conversion Table (Up to 4) Select Code Table Margin Markup On/Off Select Vertical Spacing (4,5, or 6 lines/ inch Select output Device
Optional Features:	Extra Codes Pin Feed Alternate Font Dual Font Formscan Extended Header (Margin Markup) Interfaces to computers and peripherals Paragraph Insertion Full Page Buffer RS232 Communications Modem
Physical:	Height--46" Width --28" Depth --28" Weight--400 lbs. Power --115V, 50/60 cycle, 7.5 amperes

SECTION 2.0

INSTALLATION

2.1 CHOOSING A SITE

It is recommended that ALPHA have a minimum of two feet of clear space at the sides and three feet at the front and rear of the cabinet. These minimum space requirements allow for operator access and service convenience. Also, the specified clear space requirements allow for circulation of cooling air in and around the cabinet.

CAUTION

Do not expose ALPHA to weather, liquid spillage, or excessive jarring. Also, do not use cabinet top surface to support heavy loads.

2.2 SITE REQUIREMENTS

The following power and operating ambient requirements are necessary to insure normal operation of ALPHA and minimize service problems:

Operation Ambient:	
Temperature	70° F Average
	80° F Maximum
	50° F Minimum
Power Requirements:	
Voltage	115 VAC ± 10%
	230 ± 10 VAC
Frequency	50-60 Hz
Phase	Single (1Ø)
Nominal Line Load*	7.5 Amperes
Power Cable:	Minimum length of 48 inches consisting of three-wire, 14 gauge type SO with plug equivalent to Hubbel Twistlock grounded cap plug, part No. 3333.

*15 ampere line service should be provided when peripheral unit power is supplied by ALPHA service bus.

2.3 STARTING UP ALPHA

The following procedure should be used when ALPHA is initially installed and started for the first time.

A. Connect the main power cable to the line source outlet. Check the output plug of the cable for the specified voltage, frequency, and phase.

B. Connect the main power cable to the power receptacle at the bottom rear of the cabinet. (See Figure 2-1).

C. Connect the power lead and output (ribbon type) cable to the peripheral unit (paper tape punch).

D. Set the POWER switch on the "Format Panel" to the ON position. (The four paper viewer lamps should light and the fan in the base of the cabinet and the one adjacent to the stack feeder should operate. After a delay of several seconds the ALPHA will become operational (audible snap should be heard) and the PAGE lamp on the "Control Panel" and LED display will come on.

E. Set the Mode Selector switch on the "Format Panel" to the TEST 4 position to initialize the scanning (margin, etc) parameters in the microprocessor.

F. Set the Mode Selector switch to the OPERATE position, then toggle the START switch on the "Control Panel". The read head should travel to the left side of the carriage then return to its home position (center of the scan area). When ALPHA is ready to scan text the RUN, PAGE and FEED lamps and the read head lamp should be on.

NOTE

The Mode Selector switch must be in the OPERATE position for ALPHA to scan text.

G. If the read head fails to move when the START switch is toggled, press the RESET switch. This should reset the ALPHA. (The RUN, FEED and read head lamps should go ON.) Toggle the START switch again.

H. Install the scanned text hopper at the rear of the cabinet. ALPHA is now ready for work.

NOTE

ALPHA uses a time-delay circuit for shutdown. If no scanning occurs during an idle period of a maximum of two minutes, the unit is placed in a STOP condition. To restore machine To operating readiness, depress START switch.

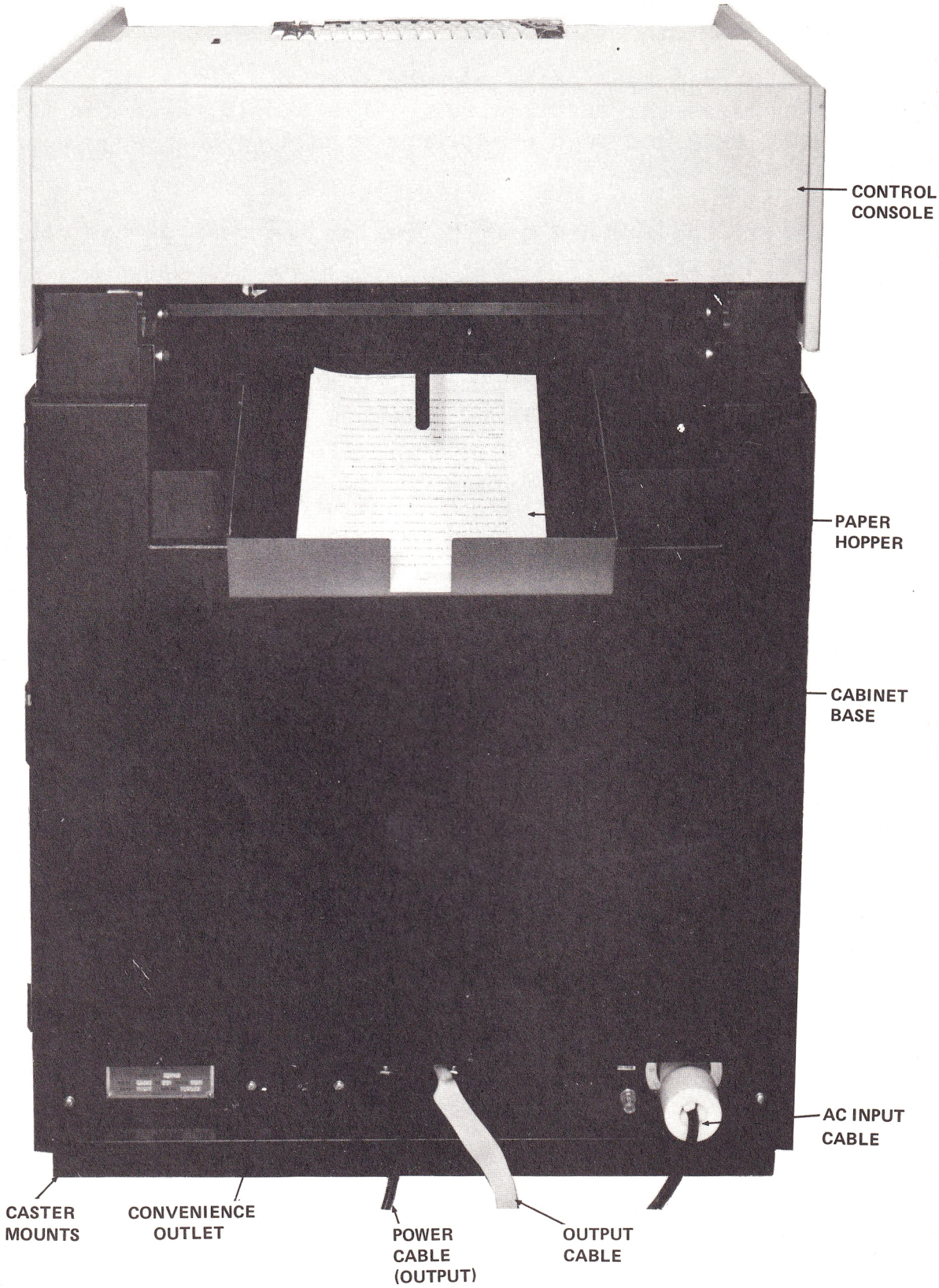


FIGURE 2-1. REAR VIEW OF CABINET

SECTION 3.0

OPERATION

3.1 INTRODUCTION

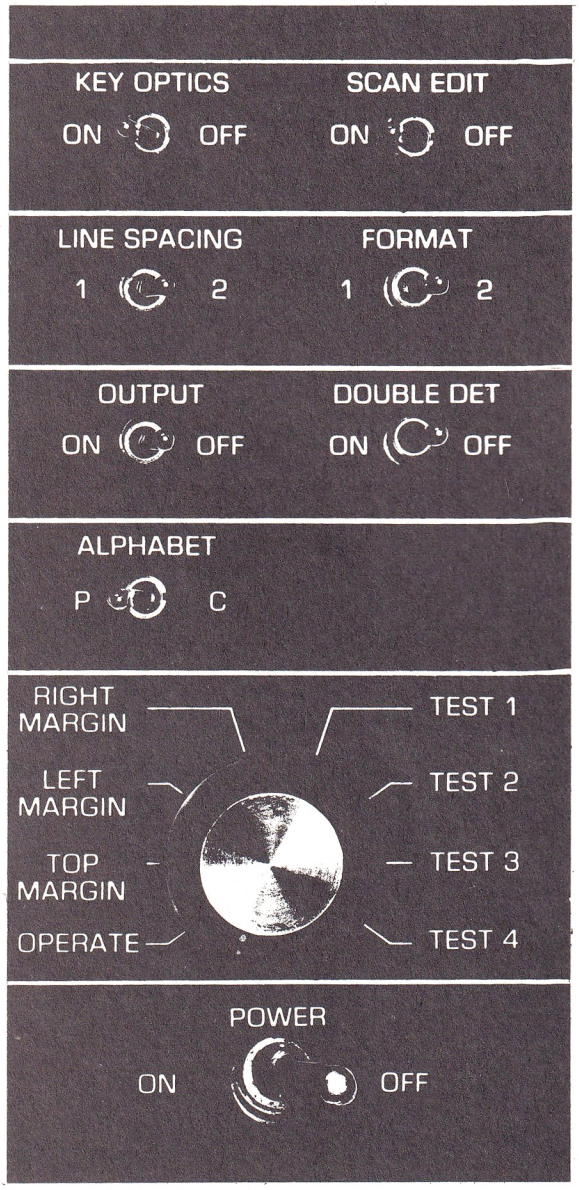
The ALPHA has been "operator" engineered to provide the user with a minimum of controls to achieve the specified results. All of the operator controls for ALPHA are located on two panels, one at each side of the input stack feeder tray. A standard ASCII keyboard is located at a convenient height to allow operator corrections and intervention when necessary. Also, a paper viewer window and mirror tilt lever are provided to allow the operator to observe the position of the scan head at any given time without the inconvenience of bending over the machine.

3.2 CONTROLS AND INDICATORS

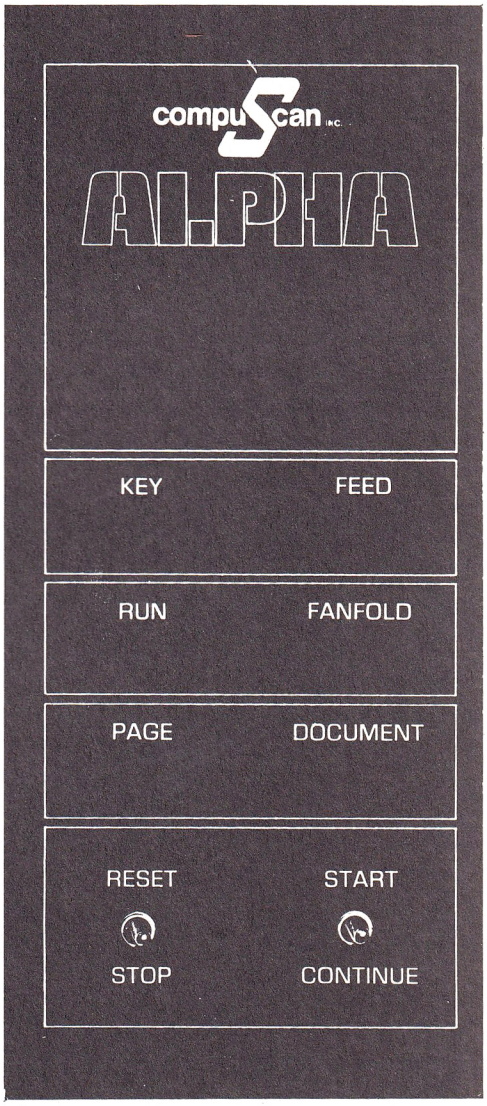
The ALPHA operator controls are located on the "Format" and "Control" panels (Figure 3-1). The function of the switches on the "Format panel" are described in Table 3-1. The "Control panel" has six indicator lamps and two switches. Four of the function indicator lamps are described in Table 3-1. The remaining two function indicator lamps (FANFOLD and DOCUMENT) are used with special options and their use will be described in a supplement to this manual where applicable.

3.2.1. RESETTING TOP, LEFT, AND RIGHT MARGINS

A preset margin default value is set into ALPHA when the Mode Selector switch on the Format Panel is set to the TEST 4 position. (Refer to Table 3-2.) The operator can change these margins as needed by pressing the RESET switch, then setting the Mode Selector switch to the margin to be changed. A sequence of three numerals is displayed on the LED Display above the keyboard. The numerals are margin measurement from the left and top edge of the page in tenths of an inch. By keying the lower case letter a (for add) and s (for subtract) the operator can alter the margins. However, immediately after the new margin value is reached, the Mode Selector switch must be set to OPERATE to place the new margin value in core memory. The altered margin(s) will remain in ALPHA until changed.



FORMAT PANEL



CONTROL PANEL

FIGURE 3-1. OPERATING CONTROLS AND INDICATORS

TABLE 3-1 OPERATING CONTROLS AND INDICATORS

Control or Indicator	Function
	FORMAT PANEL
KEY OPTICS switch	Activates an editing mode which can be turned ON or off.
SCAN EDIT switch	This editing mode can be selected alone or used with KEY OPTICS.
LINE SPACING switch	Position 1 is for single spaces text. Position 2 selects double spacing. The ALPHA is factory set to read single and double spaced text, typed on 5 lines per inch typewriters. For 6 lines per inch typewriters refer to the (Δ) Delta command in Header Sheets, Section 5.0.
FORMAT switch	This switch is used with special programs only.
OUTPUT switch	Turns off all output while scanning Header Sheets or for testing.
DOUBLE DET switch	Double page feeds are detected and scanning is stopped in ON position. When pasted-up copy is scanned, OFF position disables detector to allow scanning without energizing stop circuit.
ALPHABET switch	P and C are the Perry or Courier font. When ALPHA incorporates the dual font option, this switch selects either font for scanning.
Mode Selector switch	Selects ALPHA mode of operation, OPERATE (normal for scanning text), MARGIN (check or change RIGHT, LEFT

TABLE 3-1 OPERATING CONTROLS AND INDICATORS (Cont'd)

Control or Indicator	Function
	or TOP), and TEST (1, 2 and 3 are for maintenance purposes; 4 initializes margins and scanning parameters in microprocessor core memory).
	CONTROL PANEL
KEY Light	When scanner is unable to recognize a character with absolute certainty, and KEY OPTICS switch is ON, this light will be on to remind operator to correct or confirm the character in question.
FEED Light	This light remains ON until a sheet of copy moves into position under the read head, then it goes out.
RUN Light	When light is ON machine is operating.
FANFOLD Light	This light is used with special programs only.
PAGE Light	This light indicates when the scanner is in the page mode of operation.
DOCUMENT Light	This light is used with special programs only.
RESET/STOP Toggle Switch	RESET: This two-position, momentary contact switch resets the internal operating sequence to its starting point and turns paper tape punch off.
	STOP: This stops the scanner after it completes the line it is scanning.

TABLE 3-1 OPERATING CONTROLS AND INDICATORS (Cont'd)

Control or Indicator	Function
START/CONTINUE Toggle switch	START: Any page remaining under the scanner when the START toggle switch is pressed, is ejected. Scanning resumes on a new sheet of copy. CONTINUE: Scanning is resumed from the position it had previously stopped.

TABLE 3-2 TYPICAL DEFAULT MARGINS AND SCANNING PARAMETERS

PARAMETER	VALUE
TOP MARGIN:	1.0 inches
LEFT MARGIN:	0.9 inches
RIGHT MARGIN:	7.7 inches (from left edge)
END LINE CRITERIA:	4 blank characters (spaces) after a character is found.
PAGE END CRITERIA:	2 blank lines after a non-blank line is found.
NULL END LINE CRITERIA:	20 blank spaces ends line.
VERTICAL SPACING RANGE:	5 lines/inch single space, 2 1/2 lines/inch double space.
SPACE COMPRESSION:	ON - multiple sequential spaces are compressed to one.

NOTE

To set margins to default values*, set Mode Selector Switch to TEST 4, press RESET on Control Panel, then return to OPERATE Mode. (To set other scan parameters to default values refer to the Header Sheets, Section 5.0.)

*Default values are margins set into ALPHA in production.

3.3 LED DISPLAY

On the top of the ALPHA cabinet above the keyboard (Figure 3-2) is a three-element indicator which displays letters and symbols in red through light emitting diodes. By reference to the characters displayed (refer to Figure 3-3) on these LED elements an operator can read:

1. The margin settings of the machine in inches and tenths of inch.

2. Coded error messages to reveal an operating problem (refer to Table 3-3).

3. A character in the text (best guess) plus those on either side of it which is questionably recognized when KEY OPTICS editing is used.

4. The first three characters of each line scanned.

3.4 VIEWER WINDOW

The window allows the operator to see the text that is being scanned, and the position of the read head during operation. A red mechanical pointer mounted on the read head will point to any character the scanner cannot recognize during operations in the KEY OPTICS mode. If during scanning the ALPHA read head encounters a character which is not machine recognizable, the scan head will stop, return to the character in question, and an audible tone will alert the operator of the stoppage. The operator can see the copy directly through the window, with the red pointer indicating the character causing the stoppage; and at the same time the LED Display will indicate on its center element the machine's best guess of the character causing the stoppage. If the character is entirely unrecognized a random unrelated character will appear. The right and left LED elements will display the characters immediately preceeding and following the character in question.

The operator either accepts ALPHAs best guess or makes a correction by means of the keyboard, and the scanner continues reading

text automatically unless another questionable character is encountered.

A lever just to the right of the viewing window allows the operator to adjust a mirror to look indirectly at the paper being scanned. This allows reading of the text from any operator height without leaning over the machine.

3.5 INSERTING COPY INTO THE STACK FEEDER

Prior to inserting paper (sheet or stack) into the stack feed for scanning, the paper guides (Figure 3-4) must be adjusted to the width of the paper that will be used. The guide fastening screws located under the tray should be loosened, the agjustable guides positioned against the sides of the paper without binding, then the screws tightened. It is recommended that there be a clearance between the page and the guide of approximately 1/32 of an inch.

ALPHA can be fed individual sheets of copy or stacked copy up to a maximum of 50 sheets, of 11 x 11 inches. However, when a smaller sheet is used the dimension of the sheet in the direction of feed should not be less than 7 inches. When using 11 x 24 inch paper, only single sheets should be inserted into the stack feeder. The sheet or stack of paper being used MUST NOT be pushed too far into the feeder. The furthest point that a stack may be inserted in the feeder is to the wire ramp.

In the stack feeder the paper is passed along the feeder tray between the vertical paper guides until it hits a stop. The feeder then picks up the sheet and positions it under the read head. When feeding properly, the top sheet of a stack tends to float lightly on top of the stack.

NOTE

Pages inserted into the stack feeder should be positioned for normal reading with page numbers increasing from top to bottom.

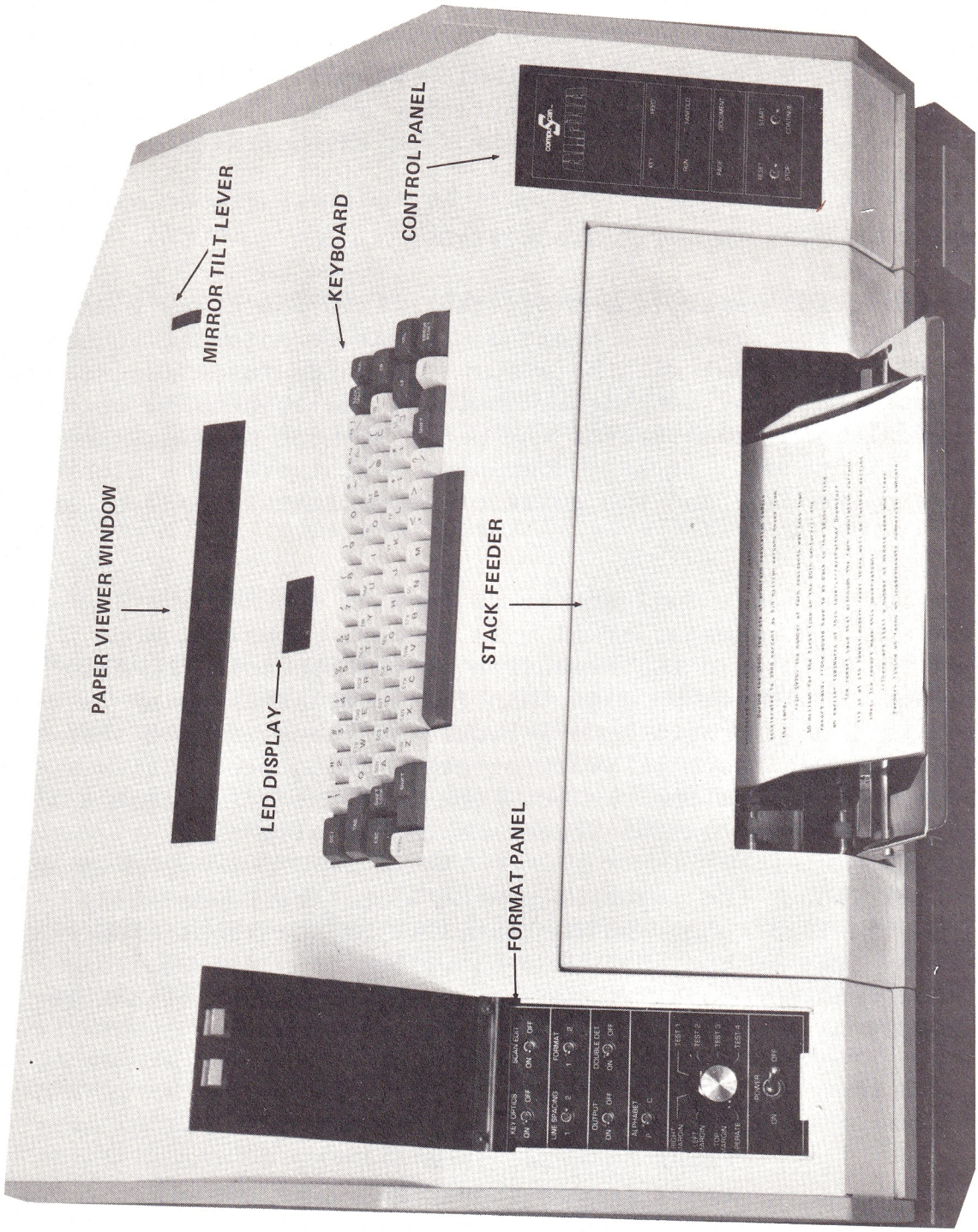


FIGURE 3-2 TOP VIEW OF ALPHA CONSOLE

FIGURE 3-3. TYPICAL LED CHARACTER PATTERNS

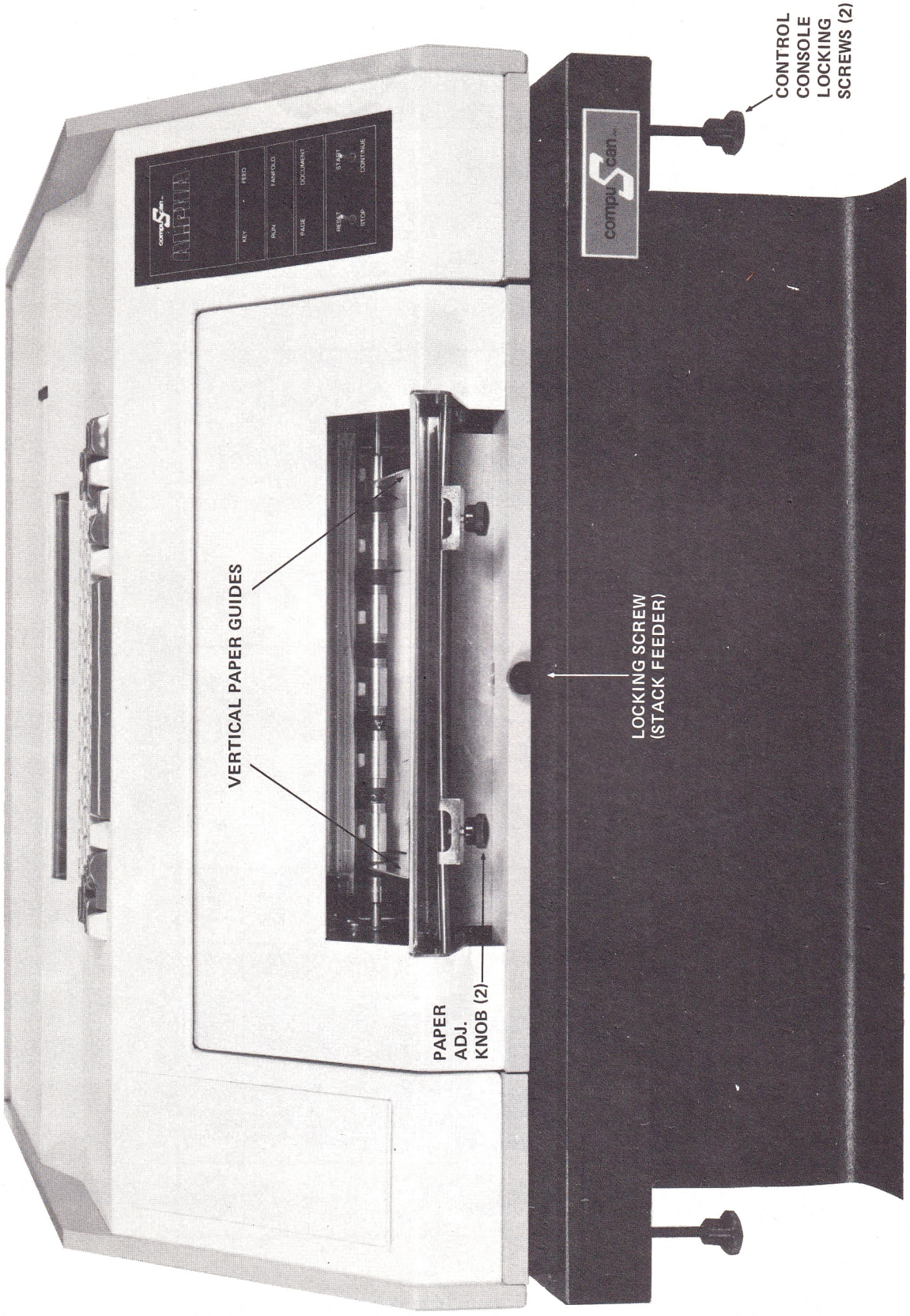


FIGURE 3-4. STACK FEEDER ASSEMBLY

TABLE 3-3 CHARACTERISTIC LED SIGNALS AND ERROR MESSAGES

Description	Output Errors
One inch margin	1
1 1/2 inch margin	15
Key optics stop (In this example the scanned word was our)	o8r or oJr
Beginning of scanned line (The line began with the word think)	thi
Beginning of horizontal crossout (The word appeared as for~~rign~~.)	r□E
Beginning of page	◰□□
End of page	◲□□
Output device not READY or unplugged	⌂01*
Low Tape	⌂02
PAPER HANDLER ERRORS	
Double page feed, or too thick paper used	⌂P2
Paper will not feed, feed jam	⌂P3
Paper will not eject, output hopper jam	⌂P4

* If alarm is on, this indicates Output Device 1 (punch)
  If alarm is off, this indicates Output Device 2 (on-line, for machines so equipped)

TABLE 3-3 CHARACTERISTIC LED SIGNALS (Cont'd)

Description	Output Errors
SCAN EDIT ERRORS	
Insufficient ▵ 's in SCAN EDIT line	⌂E1
Too many ▵ 's in SCAN EDIT line	⌂E2
More than 250 characters on line (Total of text, key opitcs and scan edit lines)	⌂E3
SCAN EDIT line does not begin with delta (▵)	⌂E4
HEADER SHEET ERRORS	
A number in a command or on a Header Sheet was larger than the allowed maximum for a number used in this context.	⌂H0
Illegal ▵ code	⌂H1
Header Sheets out of sequence. (i.e. an attempt was made to read a longer input string length code than the last code).	⌂H2
Illegal character to the right of the equal sign on a Header Sheet line.	⌂H3
Missing, or incomplete, specification of the output field (right of equal sign) on a Header Sheet.	⌂H4
Attempt to output from incorrectly defined code conversion table.	⌂H5
Command error (such as no space following command)	⌂H6
Code Conversion Table full.	⌂H7
Scanning Parameter error (out of Range).	⌂H8

TABLE 3-3 ADDITIONAL CHARACTERISTIC LED SIGNALS (Cont'd)

Description	Output Errors
If these error messages occur it usually is due to a hardware malfunction. (Refer to the Troubleshooting Guide, Table 6-2.)	⌂S1 ⌂S2 ⌂S3**

** The usual reason for this error is that the font (ALPHABET) selector switch position and type do not agree.

3.6 SCANNING TECHNIQUE

The use of KEY OPTICS and/or SCAN EDIT are options available to the operator. As long as the font (ALPHABET) selector switch corresponds to the font of the copy the scanner can recognize and output. The subject of copy preparation will be discussed in a later section.

Scanning with KEY OPTICS only permits correction and editing of text which contains imperfections. Any character which is blurred, broken, or distorted will trip a stop circuit and audible alarm to allow correction through the keyboard. Any single character or character string which has been crossed out in carbon ink will stop the scanner and allow correction through the keyboard. Once these characters have been keyed, pressing the carriage return key inserts them into the line and they become part of the output as scanning resumes. If a deletion is desired the characters are simply crossed out.

ALPHA is blind to colored pen editing marks as long as they contain no carbon. COMPUSCAN recommends use of red nylon tip pens, provided that the editor does not bear on the point so heavily that the typewriter carbon is smeared across the typed characters. A black line crossout will stop the scanner where the correction is made. The red notation will furnish correction information without causing scanner stops.

The middle character space of the LED will indicate the questionable or unrecognized character. If the LED displays the character correctly it can be inserted in output by pressing

carriage return (CR). If the operator desires to delete a character displayed by the LED, press DEL key followed by CR.

If keyboard input is desired for an entire line a black cross-out will stop the scanner. At this point the operator will press the NUL key and delete the entire line. A line of text can now be entered from the keyboard. To insert this new line and continue scanning, press the carriage return.

If the operator wishes to erase a keyboard insertion or the machines best guess during an unrecognized character stop he must press the DEL (deletion) key or back space (deletes previously entered character) before pressing carriage return. (Refer to Table 3-3 for the various functional combination of the Scan Edit and Key Optics switches). In summary, when scanning is performed in the KEY OPTICS mode, the scanner will stop only on single characters which are questionable or unrecognized, and horizontal crossouts (only if Scan Edit switch is OFF) wider than one character.

NOTE

The maximum number of characters on a line is 250. This includes the scanned line, any SCAN EDIT line, and any KEY OPTICS insertions on those lines.

3.6.1 SCAN EDIT MODE

The difference between KEY OPTICS and SCAN EDIT corrections is that KEY OPTICS corrections are made after the manuscript has left the typewriter. SCAN EDIT corrections are made while the copy is in the typewriter.

When the typist discovers a typing error, the word or words are crossed out in black, and typed correctly between lines beginning and ending with a delta (∆) symbol.* If multiple crossouts occur on one line, there must be a word correction or deletion for each cross out. The corrections will be inserted from left to right on the text line into each crossout. Additional detail in editing procedure will be found in the EDITING section of this manual.

* Scan Edit Symbol may vary for different fonts.

TABLE 3-4 EDITING COMBINATIONS

Scan Edit	Key Optics	Misrecognized Character	Horizontal Crossout
ON	ON	Key Optics Stop	Scan Edit Insertion
ON	OFF	Accepts Best Guess	Scan Edit Insertion
OFF	ON	Key Optics Stop	Key Optics Stop
OFF	OFF	Accepts Best Guess	Delete

3.6.2 SCAN EDIT RULES

A. Corrections should be typed flush left on the lines between text. The original text must have been, of course, double spaced.

B. The number of crossouts must equal the number of insertions.

C. The Scan Edit line must begin and end with a delta (▵).

D. Remember that deletion symbols on the scan line delete crossouts as well as words and characters, e.g.:

The two deletion symbols delete the previous word, which in this case is the second crossout. The result is that there is one crossout for two insertions.

```
This will ~~cuase~~ an ~~E2~~¤¤ error
▵cause▵edit▵
```

The following, however, will not cause an error:

```
INPUT:   This will not cause an ~~e4~~¤¤ error.
         ▵a Scan Edit▵

OUTPUT:  This will not cause an error.
```

The only crossout is deleted. The program does not know, therefore, that a Scan edit insertion was intended. Use care when combining deletion symbol editing with insertion editing.

E. Delta commands may never appear on a Scan Edit line.

F. The SCAN EDIT switch must be ON and the LINE SPACING switch be set to 2 for scanning text which may have Scan Edit corrections. The LINE SPACING switch must be set to 1 and the SCAN EDIT switch must be OFF when scanning single spaced text.

3.6.3 SCAN EDIT ERRORS

The Edit program checks for four error conditions:

LED DISPLAY	ERROR
ΔE1	Too many crossouts or no delta at end of Scan Edit line.
ΔE2	Too many insertions on Scan Edit line.
ΔE3	Greater than 250 characters input in one Scan line and its corresponding Scan Edit and Key Optics insertions.
ΔE4	No delta at the beginning of a Scan Edit line.

Error 3 may occur on a Scan or a Scan Edit line or while keying in Key Optics. All other errors may occur only after scanning a Scan Edit line. To recover from an error proceed as follows:

A. Press START switch to reject the page or press CONTINUE switch to recover from the error.

B.1. If CONTINUE switch was pressed, press NULL switch to delete the Scan Edit line. Key in the line as it was intended to be scanned. If another error occurs after keying, the keyed input violated a Scan Edit rule, as indicated by the error number. Recover by following the procedure above. Press CR to continue scanning.

B.2. If the operator decides to continue scanning without taking time to key-in the desired line, press CR.

The resultant output depends upon the type of Scan Edit error:

E1	excess crossouts are deleted, or if no end of line delta, the end of the Scan Edit line acts as the closing delta.
E2	The excess inserts are ignored
E3	Makes insertions until 250th character reached.
E4	Assumes delta (Δ) at the beginning of Scan Edit line.

3.6.4 HEADER SHEET ROUTINES

ALPHA contains core memory which allows the operator to enter automatic typesetting commands which govern the output from the scanned text. These commands are typed on header sheets which are scanned prior to the text sheets. A separate section titled HEADER SHEETS is provided to instruct operators and typists in the preparation and use of header sheets.

SECTION 4.0

PREPARING THE MANUSCRIPT (TYPING AND EDITING)

This section has been prepared as a guide and/or reference for the typist who will prepare copy for scanning by ALPHA. An understanding of these typing and editing techniques is essential to avoiding unnecessary stoppages. It is recommended that the typist read this section thoroughly before attempting to prepare copy.

4.1 TYPING

Typed copy for the ALPHA must be prepared on a 10 pitch electric typewriter such as an IBM Selectric (I and II), Olivetti Editor 2, Underwood, or Royal. The selected fonts can be either Courier 12, OCR-A, OCR-B, or Perry. The combination of the IBM Selectric utilizing the Perry font is CompuScan's recommendation for a typewriter and font. It is preferable if these machines have a five line per inch (LPI) spacing.

A one time carbon ribbon must be used on all the above mentioned typewriters. Any good quality paper should be used. It should be 20 lb. white bond or 60 lb. white offset. Colored stock may be used, but it is advisable to discuss this first with CompuScan. Paper dimensions may vary from 5 inches long by 7 inches wide to 11 inches wide by 24 inches long. Text is restricted to an area 10 inches wide on the paper. (Continuous sheet Pin Feed paper is an option.)

4.1.1 SPECIFICATIONS

A. Page margins can be set one inch on all sides; however, they can be set as low as 0.5 inch on top and 0.4 inch for the left and right margins. (See CompuScan form paper (Figure 4-1) employing these margins using nonreadable color ink for all print.)

B. When using Selectric typewriters the multiple copy control on the top left of the typewriter should be in the forward most position for single sheets. The impression controls on the typewriters should be set in the mid position. The lever located to the right of the type element should be set to 3.

JOB _____ NO. _____ PAGE _____

ALIGN FIRST CHARACTER UNDER THIS ARROW

INSTRUCTIONS (NOTES)

TV NEWS SIMPLE AND DIRECT/1

{By JOHN JONES/c

TV EDITOR}/c

{CHICAGO --} Pei□ople who are able to hear know how frustratio□ng it is when the television sound goes off. TV becomes just endless, meaningless pantomime.

Think, then, what most television is for the deaf.

But for five minutes Monday through Friday, Chicago's 25,000 deaf or hearing handicapped can tune into what TV says. Rabbi Douglas Goldhamer gives local news in sign language on BNC□□NBC-TV for Chicagoans during the Today show. He has been doing it since ~~Aug.~~ August 1972, and his trade-mark, ''Keep Smiling,'' can make women swoom.

Public television ended in July□□□

Neither Goo□ldhamer nor Moody is deaf. Neither had deafness in his family. Bothare□□Both are fascinated by sign language, inspired to serve the handicapped in some cat□pacity and ~~very~~ quite frankly, turned on by the ~~vigor~~ power that comes with being sound waves for the deaf.

''A tr~~ifif~~ic jam on an expressway become~~z~~, in sign language, cars parked one behind the other and great confusion.

FIGURE 4-1 SAMPLE TEXT PAGE ILLUSTRATING DELETION SYMBOL AND SCAN-EDIT EDITING ON A COMPUSCAN FORM SHEET

DO NOT TYPE BELOW THIS LINE

ALPHA

C. Type all copy flush left. When a paragraph indention is desired, the typist simply indents between 5 and 10 spaces.

D. Text can be typed either double or single spaced, but if editing will be made to the copy with Scan-Edit, double spacing must be used.

E. The ALPHA will reduce 2 or more consecutive spaces to one space on the output.

F. Command codes can be typed anywhere within the text or "keyed" in at a later time (key optics). These codes will vary, so carefully follow codes designated for each job.

G. The deletion symbol (shift or unshift -) and scan edit symbol (unshift /\ ) keys are used to generate these codes (in Key Optics) regardless of the character that is typed.

4.1.2 DO'S AND DON'TS

DO square the paper in typewriter. Be especially careful when putting in the second time to align the text so that inserted lines do not interfere with the original typed lines.

DO use red pencils or red brush pens to indicate proof reading corrections within the scanning area. This color, as well as many other colors not containing carbon, are not detected by the scan head.

DO type a user-selected code (example -30-) at the end of each story or ad. The result, during scanning, will be a special output and a tape advance to facilitate separation of jobs or ads.

DO type tabular material with coding such as; column start, quad left, leaders, etc., as required for the typesetting machine.

DON'T substitute the lower case "L" for the number "1".

DON'T substitute the upper case letter "O" for the numeral "0".

DON'T underline words and characters.

DON'T use horizontal or vertical lines to separate columns or tabular material.

DON't hyphenate a word at the end of a line unless the word is normally hyphenated. Instead, place the word in full at the beginning of the next line. If it is necessary to break a word, type the inhibit space symbol ({)* at the end of the line and continue the word on the next line. The ALPHA normally outputs a space at the beginning of the next line. This inhibit space symbol blocks the insertion of the space and causes the word to be joined in the output.

EXAMPLES:

INPUT: Do not hyphenate a word at the e{
nd of a line.

OUTPUT: Do not hyphenate a word at the end
of a line.

INPUT: The wife told her husband that his mother-{
in-law is coming for a visit.

OUTPUT: The wife told her husband that his
mother-in-law is coming for a visit.

INPUT: Call between 9 a.m. and 5 p.m. 777-{
1234.

OUTPUT: Call between 9 a.m. and 5 p.m.
777-1234.

* Customer Selected Character

4.2 DELETION SYMBOL EDITING

Typographical errors that are detected during typing are easily corrected by used of a special deletion symbol which will never appear on the output tape. The rules for deletion symbol editing are quite simple. The typist may delete a character, word, or line by typing one, two, or three deletion symbols respectively. (See Figure 4-1.)

¤	Delete previous character (includes all deltas ▵).
¤¤	Delete previous word, not including previous space or Scan-Edit delta (▵).
¤¤¤	Delete line (Back to left margin).

Deletion symbol editing may be used in conjunction with the other editing systems; and in Scan-Edit, it applies to original text lines or Scan-Edit corrections.

4.2.1 SINGLE DELETE

A single delete eliminates the immediately preceding character. The deleted character may be anything including a space or character. Never put a space between the character to be deleted and the deletion symbol -- this will merely delete the space and not the character.

INPUT: This is an example of charactr¤er editing.

OUTPUT: This is an example of character editing.

4.2.2 DOUBLE DELETE

A double delete eliminates all preceding characters up to, but not including, a space.

INPUT: This is a word corec¤¤correction.

OUTPUT: This is a word correction.

4.2.3 TRIPLE DELETE

A triple delete eliminates all characters and spaces, including an indent, back to the left margin. The line may be retyped immediately following the triple deletion editing or begun again on the following line. In the following example the typist had difficulty getting started. After making excessive errors, three deletion symbols (¤¤¤) were typed which deleted everything up to the left margin and finally re-typed the desired line. Notice that you may continue typing immediately after the last deletion symbol or drop down to the next line and continue typing there.

INPUT A: This was¤¤is a bod¤¤badly ryed¤¤¤This was bad.

OUTPUT A: This was bad.

INPUT B: This was¤¤is a bod¤¤badly ryed¤¤¤*
This was bad.

OUTPUT B: This was bad.

* This line is nulled out by program logic.

In this example, the person indented by mistake, deleted the indent with "¤¤¤", and typed the desired line.

INPUT: ¤¤¤Here is an indent delete.

OUTPUT: Here is an indent delete.

In this example, the typist deleted the original word in addition to the single character deletion. Only the word "character" would appear on output. Any combination of one, two or three deletion symbols may be used in a line.

INPUT: Charactr¤ex¤¤Character and word deletes may be combined.

OUTPUT: Character and word deletes may be combined.

4.3 SCAN-EDIT (INSERTION) EDITING

The Scan-Edit editing mode allows corrections to be typed on the original manuscript page after copy is finished. A character, a group of characters, a word or a group of words in the original typing may be crossed out using a (CompuScan recommended) black felt tip or ball point pen and the corrections written in with a (CompuScan recommended) non-readable pen. Copy is reinserted in the typewriter and the corrections are typed in the space half way between that line and the following line. The cross-out must be at least two consecutive characters in length. (See Figure 4-1.)

The scanner always recognizes the black crossout as a deletion. The Scan-Edit program holds the crossout in storage and awaits an insertion. If one does not appear a deletion is made. The scanner will search for the Scan-Edit symbol if Scan-Edit is enabled and the correction is typed flush left half way between the line to be corrected and the next text line. If it finds a correction, it will be placed in that location. If more than one correction is required in one line, the corrections, each preceded by a Scan-Edit symbol, are typed in the same sequence as the crossout words appear. The output tape is punched with the corrections inserted in the required location.

NOTE

All horizontal crossouts should begin at the end of the first character and stop at the beginning of the last character. (e.g. n~~ing of the last character~~.)

First, in the following example, the typist typed "wprd" instead of "word". The proofreader, upon discovering the error, wrote the correction above the original word in red. The incorrect word was crossed out by a single line from a carbon ink pen. Then the sheet was placed in a typewriter and the page aligned so that the correction would be typed between the error line and the following text line.

NOTE

Any time a complete word is being corrected, it is always safe to place a space before and after the correction word.

TYPED: Here is a one wprd correction.

EDITED: Here is a one ~~wprd~~ word correction.
△ word △

OUTPUT: Here is a one word correction.

* These spaces compensate for crossouts which extend into blank spaces.

The following example illustrates the case where there is more than one correction on a line. The simple rule is to establish a one-to-one relationship between crossouts and insertions. The first insertion relates to the first crossout; the second insertion replaces the second crossout, etc.

NOTE

There is only one Scan-Edit symbol between the corrections.

TYPED: Here are multiple corrections on onx line.

EDITED: Here are ~~multiple~~ two corrections on ~~onx~~ one line.
△ two △ one △

OUTPUT: Here are two corrections on one line.

This example, although it illustrates both deletion by crossout and correction, still demonstrates the simple rule defined above.

TYPED: Here is a crossout sample followed be a correction.

EDITED: Here is a crossout ~~sample~~ followed ~~be~~ by a correction.
▵ ▵ by ▵

OUTPUT: Here is a crossout followed by a correction.

This example illustrates a case when a correction is followed by a deletion. The one-to-one relationship between corrections and crossouts is still maintained. Therefore, the last correction (▵ ▵) is necessary.

TYPED: This is a correction followed by a crossout.

EDITED: This ~~is a~~ illustrates correction ~~followed by a crossout.~~
▵ illustrates▵ ▵

OUTPUT: This illustrates correction.

In this example the first two crossouts are being deleted and "insertions at any point you desire" will be inserted into the third crossout.

TYPED: This really shows all of you how insertions are made.

EDITED: This ~~really~~ shows ~~all of you~~ how ~~insertions~~ are made.
▵ ▵ ▵ insertions at any point you desire ▵

OUTPUT: This shows how insertions at any point you desire are made.

In this example characters, as well as words, can be deleted by Ballot Box deletion symbol editing.

TYPED: This shows deletion symbol editing in a corerction line.

EDITED: This shows deletion symbol editing in a ~~corerction~~ correction line.
▵ correcton▪▪correction ▵

OUTPUT: This shows deletion symbol editing in a correction line.

In this example two deletion symbols delete everything back to but not including the previous space or Scan-Edit symbol (▵).

TYPED: Here are indeed very many editorial corrections.

EDITED: There
~~Here~~ are ~~indeed very~~ many ~~editorial~~ corrections.
▵there▫▫There ▵ ▵ ▵

OUTPUT: There are many corrections.

The following example indicates how to delete a correction line. The three deletion symbols delete everything back to and including the beginning delta. The corrections are then retyped immediately following the third deletion symbol, starting with the opening delta.

TYPED: This shaws a line delete in a corraction line.

EDITED: This ~~shaws~~ a line delete in a ~~corraction~~ line.
▵ Shows ▵ Core▫▫▫▵ shows ▵ correction ▵

OUTPUT: This shows a line delete in a correction line.

The following example indicates how to correct single characters or groups of characters.

INPUT: This is ho~~v~~ to correct one character.
▵ow▵

OUTPUT: This is how to correct one character.

INPUT: ~~Groups~~ of words may~~—~~be edited.
▵A group▵y also b▵

OUTPUT: A group of words may also be edited.

NOTE

On Scan Edit line the single ¤ can delete a ▵; the double ¤¤ deletes up to the previous space or ▵ (whichever occurs first) and the triple ¤¤¤ deletes an entire line.

ALPHA scans margins precisely. When preparing copy, check to see that the typing does not extend into the left margin. If a KEY OPTICS stop occurs at the margin it may be due to a lack of recognition of the lost portion of the first letter of the line. Decrease the left margin setting slightly to permit the reader to begin scanning a little farther left.

4.4 TYPEWRITER AND PAPER SPECIFICATIONS

4.4.1 TYPEWRITER SPECIFICATIONS

- Typewriters: IBM SELECTRIC I and II*
  OLIVETTI 4-C EDITOR

- IBM type balls: PERRY FONT, Pringing and Publishing Ball No. 199*, ANSI-OCRA No. 170, ECMA-11 English OCR-B No. 210 and COURIER 12 font No. 173.

- Line Spacing: 5 lines per inch*, single or double spaced.

- Pitch: 10 characters per inch.

- Page margins: 1 inch top and sides, 1 inch on bottom.

4.4.2 TYPEWRITER RIBBONS

- For IBM model 71 use COMPUSCAN no. 24 or IBM no. 1136310.*

- For IBM SELECTRIC II COMPUSCAN no. 30 or IBM no. 1136390.*

- NOT RECOMMENDED, IBM TECH III, no. 1136391.

* COMPUSCAN RECOMMENDED

4.4.3 PAPER SPECIFICATIONS

- Minimum page size 5 x 7 inches.

- Maximum page size 11 x 24 inches.

- Paper Weight: 20 lb. bond, or 60 lb. white offset. (No watermarks, bleaching, whitening agents or dyes and little or no rag content.)

- Recommended: COMPUSCAN SCANNABLE CUT SHEETS 8 1/2 x 11 inches.

4.4.4 EDIT MARKING PENS

COMPUSCAN recommends the following felt and ballpoint pens for best results in marking copy for ALPHA scanning.

- Ballpoint: COMPUSCAN red and black pens and refils.

- Felt tip: Pentel red and black pens, type 520.

- Flair color pens (for non-readable markers).

SECTION 5.0

HEADER SHEETS

5.1 GENERAL

Header sheets consist of one or more typed pages which contain the rules which will govern the output of text pages. These rules can be changed as necessary to accomodate various jobs. Deletion symbol editing and key optics may be used freely when typing header sheets. (The use of key optics is recommended for accuracy.) Scan edit may be used only for deleting crossouts, however no insertions should be made.

The first line of every header page must contain one ∆ command, the Define Header command - ∆Dn∆ (where n is a number from 1 to 4).* If the first line contains this ∆ command, then other commands may not be typed on the Header Sheet after this line. The OUTPUT switch on the Format Panel must be in the OFF position while scanning header pages to avoid transmitting information from a partially completed table to the output device.

5.2 HEADER SHEETS

The following explanation of Header Sheets is broken down into a series of questions and answers to simplify the subject. Questions peculiar to an individual customer can best be answered by the CompuScan Applications Department.

WHAT ARE HEADER SHEETS ?	Header sheets are typed pages that contain code conversions that set up the Alpha for proper output. Whenever the Alpha encounters the particular ∆ command: ∆Dn∆ (where n is a number from 1 to 4)* it will consider everything following it on the page to be Header information.
WHEN ARE ∆ COMMANDS USED IN REGARD TO HEADER SHEETS CODES	∆ commands appearing on text pages are used to select, clear, and define specific header sheet codes conversions table.

* Depending on the individual program.

HOW ARE HEADER SHEETS DEFINED ?

Header sheets are defined by typing ▵Dn▵ (Define Table n) on the first line where n is a decimal digit 1,2,3 or 4. All data scanned after this command to the end of a page is considered header sheet data. When the Extended Header Sheet Routine is purchased, n serves to identify one of four codes tables that may be separately loaded, cleared, and invoked. When the Extended Header Sheet Module is not present, n should be 1 (one).

The ▵ is a symbol used to identify an Alpha command. The Header Module uses several ▵ commands which are defined in this manual. The ▵ symbol is also used in other Alpha routines, as for example, Scan Edit.

When more than one typed page is needed for a given codes table, all of them must have the ▵Dn▵ on the first line. They must be scanned in proper sequence and therefore should be numbered. Numbering may be done near the top edge above the top margin, on a comment line, or anywhere using a red ball point pen.

HOW ARE CODES TABLES SELECTED AND CLEARED ?

Codes tables are selected and cleared by means of ▵ commands typed on text pages. These commands may be typed anywhere on a text page and may not be typed on a Header Page.

▵Hn▵ - Select Header Table n - where n is a digit 1,2,3 or 4.* The code conversion table specified by n will be used starting with the next character on the line. (This command is unnecessary with the Basic Header Module since Table 1 is selected always.)

* DOIP

▵Cn▵ (Clear Header n) - Clears the code table identified by n which is a decimal digit 1,2,3 or 4. n is 1 if Basic Header Module is present. If Extended Header Sheet Module is present ▵Cn▵ clears the codes table that is selected. If n is absent or zero all codes tables are cleared.

HOW ARE COMMENTS TYPED ON HEADER SHEETS ?

Comment lines which are not part of the Codes Table may be typed on a Header Sheet for any purpose such as for identification or explanation. Comment lines have the format: (▵) (One or more spaces) (any text).

HOW ARE CODE CONVERSIONS TYPED ON HEADER SHEETS ?

Each code conversion is typed on a separate line and has the format:

(Input String) (One or more spaces) = (One or more spaces) (Output String).

WHAT DOES THE INPUT STRING CONSIST OF ?

Input strings consist of any number of typed characters with no embedded spaces. Besides typed characters there are also special characters which are sensed during scanning and are also a legal part of the Input String. These special characters are represented on Header Sheets as follows:

▵b (Start of Line)
▵e (End of Line)
▵a (Start of Page)
▵z (End of Page)
▵i (Indent)
▵ns (n number of spaces where n is a decimal number from 1 to 256)

WHAT DOES THE OUTPUT STRING CONSIST OF ?

The Output String consists of one or more characters, Subroutine Command and Field Delimiters.

HOW ARE CHARACTERS FORMATTED IN THE OUTPUT STRING ?

Characters are output in the following manner:

shift sddd where ddd is a 1,2, or 3 digit octal number
unshift uddd where ddd is a 1,2 or 3 digit octal number
neutral oddd where ddd is a 1,2 or 3 digit octal number
neutral dddd where ddd is a 1,2 or 3 digit decimal number
neutral hdd where dd is a 1 or 2 digit hexadecimal number
ignore i ignore Input String wherever it occurs in text

WHAT ARE SUBROUTINE COMMANDS USED FOR ?

Subroutine Commands are used to; set or reset the X and Y Flags used with the field delimiters, output leader on the paper tape punch, set ALPHA's scanning parameters. Subroutine commands have the following format:

*0 (Reset XSTOP Flag)
*1 (Set XSTOP Flag)
*2 (Reset YSTOP Flag)
*3 (Set YSTOP Flag)
*4 (Set Default Shift Status)
*5 (Output Leader)
*e Change End Line Criteria
*l Change Left Margin
*n Change Null End Line Criteria
*p Change Page Finish Criteria
*r Change Right Margin
*t Change Top Margin
*f Select Space Compression

Whenever subroutine *5,*e,*l,*n,*p,*r,*f, and *t are used they must be followed by a character specification which serves to give either the amount of blank output leader wanted as with *5, or, to give the new value of the scanning parameter

in tenths of an inch. The most convenient character to use is a decimal specifier. For example the Code Conversion:

/1 = *1,d20

will cause a new left margin of 2.0 inches to be set for the line following the one with "/1" typed on it.

WHAT ARE FIELD DELIMETERS ?

The Field Delimiters are x or y. When a pair of x's occur in an output string, the codes that occur between them are output only if the XSTOP Flag is reset. If the XSTOP Flag is set then the codes between the x's are inhibited from being output.

WHEN ARE FIELD DELIMETERS USED ?

The Y STOP Flag is customarily used to suppress the Quad code before the EmSpace on indented lines when the preceding line ends with a Quad Code. Therefore, a code conversion is needed to always set the STOP flag whenever a Quad code appears at the end of a line and to reset it whenever there is none.

Similarly, the XSTOP Flag is customarily used to output or suppress leading spaces on new lines depending on the end of line conditions on the preceding line.

HOW ARE HEADER SHEETS TYPED ?

Header sheets are typed on 8 1/2" x 11" pages using one inch margins all around and are either single or double spaced. When scanning Header Sheets it is important to insure that margins and line spacing are set at values which will accept all the text. Header Sheets should be scanned with Key Optics on for maximum accuracy.

IN WHAT ORDER ARE CODE CONVERSIONS SCANNED ?

Code conversions must be scanned in order of decreasing input string lenght. Thus, if the longest input string contains five characters, then all five character input string conversions must occur before the first input string of length four, etc. Input items such as ∆b, ∆e, etc. count as one character each. ∆ns as n characters.

HOW LONG CAN A CODE CONVERSION BE ?

A code conversion input string must always be less than one line long. This is because room must be left at the end of the line to accomodate (one or more spaces) (equal sign) (one or more spaces) (one character of output string).

Code conversion output strings may be several lines long; however, the beginning of each continuation line must start with a delta followed by a comma (∆). However, no single code conversion may extend over the end of page.

NOTE

Although the default value of the Right Margin is 7 1/2" this does not limit the input string to be less than seventy characters. By increasing the value of the Right Margin by use of the rotary switch one can fit larger input string or possibly avoid using continuation lines of the output strings.

5.2.1 COMPLEX CODE CONVERSIONS

The following are examples of complex code conversions. (Refer to the typical installation Header Sheets at the back of this section.)

1) -30-^e = o33,*1,*3,*5,d100

This code conversion will output a TTS quad left, set the XSTOP and YSTOP flags, and output 10 inches of leader on the paper tape punch whenever the code "-30-" appears at the end of a line.

2) /|^e = o33,*1,*3

This code conversion outputs a code for quad left and at the same time sets the XSTOP and YSTOP flags whenever a "/ " combination appears at the end of a line. This suppresses the space to be output at the beginning of next line.

3) {^e = *1,*2

This code conversion inhibits the space to be output at the beginning of the next line whenever a "{" appears at the end of a line.

4) ^b = x,o10,x

This code conversion will allow a space to be output at the beginning of a line if the XSTOP flag is reset.

5) ^i = y,o33,y,o13

This code conversion provides a quad left code and EmSpace code to be output whenever an indent (5 or more spaces) is scanned. However, if the YSTOP flag is set, the quad left code will be suppressed. Normally if a quad code appears at the end of the previous line, the quad code for the indent conversion will be suppressed due to the YSTOP flag being set. See example No. 2.

6) ^b^a^e = i

Thsi code conversion will output nothing when scanner senses a start of page code. However, this conversion is needed.

7) ^b^z^e = *5,d30

This code conversion will output 3 inches of leader to a paper tape punch every time an end of page is sensed by the scanner.

TABLE 5-1 SUMMARY OF SPECIAL CHARACTERS USED IN A CODE CONVERSION INPUT STRING

Symbol	Meaning
▵a	Start of Page
▵b	Start of Line
▵e	End of Line
▵z	End of Page
▵ns	Spaces in input string (n=na of spaces)
▵i	Text indent (5 or more spaces)

TABLE 5-2 SUMMARY OF SPECIFIERS USED IN A CODE CONVERSION OUTPUT STRING

Symbol	Meaning
Characters	
sddd	Shift Character, where ddd is a 1, 2 or 3 digit octal number.
uddd	Unshift character, where ddd is a 1, 2 or 3 digit octal number.
oddd	Neutral character, where ddd is a 1, 2 or 3 digit decimal number.
dddd	Neutral character, where ddd is a 1, 2 or 3 digit decimal number.
hdd	Neutral character, where dd is a 1 or 2 digit hexadecimal number.
i	Ignore input string.

TABLE 5-2 SUMMARY OF SPECIFIERS USED IN A CODE CONVERSION OUTPUT STRING (Cont'd)

Symbol	Meaning
Subroutines	
*0	Reset XSTOP Flag
*1	Set XSTOP Flag
*2	Reset YSTOP Flag
*3	Set YSTOP Flag
*4	Set Default Shift Status
*5	Output Leader
*e	Change End Line Criteria
*f	Select Space Compression
*l	Change Left Margin
*n	Change Null End of Line Character
*p	Change Page Finish Criteria
*r	Change Right Margins
*t	Change Top Margins
Field Delimeters	
x	Used with XSTOP Flag (see field delimeters)
y	Used with YSTOP flag (see field delimeters)

5.3 TEXT PAGES USING ▵ COMMANDS

WHAT ARE TEXT PAGES ?

These are typed sheets containing text which is desired to scan and output. The text also contains some special Alpha commands which are called ▵ (delta) commands (and which may appear anywhere in the text). Text pages are output according to the rules stored in a code conversion table. Key Optics, Scan Edit and Deletion Symbol Editing may be used freely on text pages. However, a▵ command may not be typed on a Scan Edit line.

HOW ARE ▵ COMMANDS USED IN TEXT ?

commands are used in text to govern the on line changing of scanning parameters. Such scanning parameters as margins, shifts, end line and end page criteria, space compression and vertical spacing of typed lines are all easily changed by use of the ▵ commands.

WHAT IS THE INITIAL VALUE OF ALL THE SCANNING PARAMETERS AND HOW ARE THEY INITIALIZED IN TEXT ?

Scanning parameters are initialized in text by using the ▵I▵ command. The initial (default) values of the scanning parameters are as follows:

a) The Shift character set to 66
   (see ▵Sddd▵ command)
b) Unshift character set to 76
   (see ▵Uddd▵ command)
c) Begin Job Shift Status set to unshift.
   (see ▵Bn▵ command)
d) Current Shift State to Unshift.
e) Space Compression flag set to compress
   (see ▵Fn▵ command).
f) XSTOP flag is set, YSTOP is reset.

Scanning Parameters:

a) Top margin set to 1.0 inches
   (see ▵Tddd▵ command)
b) Left margin set to 0.9 inches
   (see ▵Lddd▵ command)

c) Right margin set to 7.5 inches (see ΔRdddΔ command)
d) End line criteria set to 4 spaces (see ΔEdddΔ command)
e) Null end line criteria set to 20 spaces (see ΔNdddΔ command)
f) Page finish criteria set to 2 blank lines (see ΔPdddΔ command)
g) Vertical spacing set to 5 Lines Per inch range (see ΔVdΔ command)

All of the Scanning Parameter default values may also be selected by turning the Format Panel mode switch to "TEST 4" and pressing "RESET".

WHAT KINDS OF PAGES CAN BE SCANNED ?

There are two kinds of pages:
Text Pages are typed sheets containing text which it is desired to scan and output.
Header Sheets are sets of typed pages containing code conversions and set up instructions to the Alpha.

WHICH Δ COMMANDS AFFECT THE SHIFT AND CHARACTERS ?

The output code of either the shift or the unshift character can be changed by using the ΔSdddΔ and the ΔVdddΔ commands. The beginning of a job shift state can be set to be shift, unshift, or neutral by use of the ΔBnΔ command. These are as follows:

ΔSdddΔ - Define Shift Character. Where ddd is a 1,2 or 3 digit octal value of the desired character. This command must be used if for any reason it is desired to select other than the Alpha default value. (See ΔIΔ command).

ΔUdddΔ - Define Unshift Character. Defined as the shift.

▵Bn▵ - Select Begin Job Shift State. Where n is an S,U,N (for Shift, Unshift, and Neutral, respectively).

At certain times, while outputting TTS codes, it is desirable to set the ALPHAs internal shift state to a particular value. Example: At End of Take it might be necessary to leave the scanner in Unshift for the Start of the next take, or if it is desired to always get a shift or unshift character as the first character of a job, the Begin Job Shift State may be made Neutral. (See subroutines and ▵I▵ command.)

HOW ARE SPACES IN TEXT COMPRESSED OR LEFT INTACT ON THE OUTPUT ?

Spaces are compressed by use of the ▵Fn▵ command. This is defined as follows:

▵Fn▵ - Select Space Compression Flag. Where n is either a 0 or a 1. If the flag is reset (set to 0) all scanned spaces embedded in text will be left intact for code conversions. If the flag is set (set to 1) all multiple spaces will automatically be compressed to a single space for code conversions. (This means that an input string ▵s will match any number of sequential typed spaces if the compression flag is set.) Indents on lines are unaffected by this flag.

HOW CAN THE VERTICAL LINE SPACING BE CHANGED BY USE OF THE ▵ COMMAND ?

The ▵ command used to change the vertical line spacing is ▵Vd▵. This command is defined as follows:

▵Vd▵ - Select Vertical Line Spacing. Where d may be a 4,5 or 6 to represent the single space line spacing of the typed pages. This command sets the range of the vertical spacing, the "Line Spacing" switch

on the Format Panel selects the Single or Double spaced distance within that range.

Ex: ΔV6Δ allows the choice of 3 or 6 LPI
ΔV5Δ allows the choice of 2.5 or 5 LPI
ΔV4Δ allows the choice of 2 or 4 LPI

HOW MANY BLANK SPACES WILL THE SCAN HEAD SCAN BEFORE IT DECIDES IT HAS COME TO AN END OF A LINE ?

There are two Δ commands which govern this operation. They are the ΔEdddΔ and the ΔNdddΔ commands. These commands are defined as follows:

ΔEdddΔ - Select End Line Criteria. Where ddd is a decimal number specifying the number of blank spaces which will end scanning of a typed line. This new criteria takes effect on the following line.

ΔNdddΔ - Select Null End Line Criteria. Where ddd is a decimal number representing the number of blank spaces from left margin to scan before deciding that a line is blank and terminating scanning:
The minimum value is 4 blank spaces
The maximum value is 63 blank spaces
This command takes effect on the next scanned line.

HOW CAN MARGINS BE CHANGED WHILE SCANNING TEXT ?

Margins are changed by using the ΔLdddΔ ΔRdddΔ and the ΔTdddΔ commands. These are defined as follows:

ΔLdddΔ - Select new left margin. Where ddd is a one to three digit decimal number representing tenths of inches giving the desired new left scanning margin. The minimum left margin is 0.4 inches (dd=04). The maximum left margin is one tenth inch less than the current right margin value.

NOTE

It is recommended that the left margin be set approximately 2 tenths inches less than the actual typed left margin to insure no characters are lost at start of line if a typist is slightly careless. This command takes effect on the next scanned line.

▵Rddd▵ - Select Right Margin. Where ddd is a decimal number representing tenths of inches giving the desired new right scanning margin. The minimum Right margin is one tenth larger than the current Left margin value. The maximum Right Margin is 10.6 inches (ddd=106). This command takes effect on the next line scanned.

▵Tddd▵ - Select New Top Margin. Where ddd is a decimal number representing tenths of inches giving the desired new top scanning margin.
The minimum Top Margin is 4 tenths inches (ddd=04)
The maximum Top Margin is 25.2 inches (ddd=252).

HOW MANY BLANK LINES WILL THE SCAN HEAD SCAN BEFORE IT DECIDES IT HAS REACHED THE END OF A PAGE ?

Page finish criteria is governed by use of the ▵Pddd▵ command. This command is follows:

▵Pddd▵ - Select Page Finish Criteria. Where ddd is a decimal number representing the number of blank lines required to end a scanned page. This command takes effect immediately.
Minimum Page Finish Criteria is 1 line.
Maximum Page Finish Criteria is 100 lines.

JOB _____ NO. _____ PAGE _____

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
EXAMPLE:
This is an example showing the default values
of all the scanning parameters.  Note that the
top Margin is 1 inch, the left margin is .9 inch,
and the right margin is 7.5 inches measured
from the left edge of page.  The scan head will
stop scanning a line with data on it after scanning
four blank spaces since the End Line Criteria
is set to that default value.
▵L40▵ ▵R60▵
                                The above commands
                                have changed the
                                margins
                                ▵I▵
Margins are returned by the initialize command.
                        Not scanned, default value of Null EOL is
                        20
                    Will be scanned, only 15 spaces to start of text
▵T20▵This "T" command will change the top
margin of the next sheet scanned.
All   spaces   are   compressed   to   one
on   the   output.  Page ends after scanning two blank lines.
```

DO NOT TYPE BELOW THIS LINE

NOT scanned. Page End criteria is two blank lines at default.

TABLE 5-3 SUMMARY OF ▵ COMMANDS

Symbol	Meaning
▵Bn▵	Select Begin Job Shift State
▵Cn▵	Clear Code Table n*
▵Dn▵	Define Code Table n*
▵Eddd▵	Select End Line Criteria
▵Fn▵	Select Space Compression Flag
▵I▵	Initialize (set all default values)
▵Lddd▵	Select Left Margin
▵Nddd▵	Select Null End Line Criteria
▵Pddd▵	Select Page Finish Criteria
▵Qd▵	Select Output Device
▵Rddd▵	Select Right Margin
▵Sddd▵	Define Shift Character
▵Tddd▵	Select Top Margin
▵Uddd▵	Define Unshift Character
▵Vddd▵	Select Vertical Line Spacing

* n Depends on individual program.

5.4 HEADER MODULE ERRORS

The Header Module does check to see if certain error conditions occur in scanned input. If for any reason an error is generated, the alarm tone will sound and a standard format error message will be displayed on the 3-digit LED Display above the keyboard. The line which caused the error will be visible in the Key Optics window, with the read head normally stopped in the left-most position. The Display will contain:

G	(Bell code) to signify error.
H	to signify a Header Module error.
d	a digit from 0 to 9 to indicate the type of error encountered.

The only two responses possible to an error halt are either pressing the "CONTINUE" switch or the "START" switch. "CONTINUE" will allow scanning to resume with the next line on this page, but all processing will have halted at the point in the current line where the error was encountered. "START" will eject the current page, and begin scanning of the next page. (Refer to Table 5-4 for a listing of the types of errors.)

CAUTION

If, for any reason, an error is generated on a Header Sheet, the user may continue scanning and finish the entire code conversion table. However, he will not be permitted to generate any output from a code conversion table stored this way. The only way to recover is to scan a command for that table. This feature was added to allow a complete trial scanning of a set of Header Sheets to check for errors, but to prevent the accidental outputting of probably incorrect codes from a table which had an error.

TABLE 5-4 HEADER MODULE ERRORS

Number	Explanation of Errors
0	A number in a ▵ command or on a Header Sheet was larger than the allowed maximum for a number used in this context.
1	Illegal ▵ code on input string of Header page.
2	Header Sheets out of sequence (i.e. an attempt was made to read a longer input string length code than the last code).
3	Illegal character to the right of the equal sign on a Header Sheet line.
4	Missing, or incomplete, specification of the output field (right of equal sign) on a Header Sheet or no equal sign. (Character mis-recognized.)
5	Attempt to output from incorrectly defined code conversion table. (Can only occur with "OUTPUT" switch "ON".)
6	▵ Command error (such as no closing ▵ following command)
7	Code conversion Table full or memory failure.
8	Scanning Parameter error (out of Range).
9	Undefined.

5.5 SAMPLE HEADER SHEETS

A set of Perry and Courier font header sheets are included in this section to demonstrate the header sheet format. Each set consists of 13 sheets and is typical of an ALPHA installation. (A TTS Equivalence Chart, Table 5-5, is included as a reference.)

TABLE 5-5 TTS EQUIVALENCE CHART (NUMERICAL SEQUENCE)

	Unshift	Shift
00	Tape Feed	Tape Feed
01	Thin Space	Thin Space
02	e	E
03	3	3/8
04	Elevate	Elevate
05	Paper Feed	Paper Feed
06	a	A
07	$	!
10	Spaceband	Spaceband
11	Add-thin	Add-thin
12	s	S
13	Em Space	Em Space
14	i	I
15	8	Em Dash
16	u	U
17	7	7/8
20	Return	Return
21	Close Quote	Close Quote
22	d	D
23	Hyphen	+
24	r	R
25	4	1/2
26	j	J
27	Bell	Bell
30	n	N
31	Comma	Comma
32	f	F
33	Quad Left	Quad Left
34	c	C
35	En Space	En Space
36	k	K
37	Quad Right	Quad Right
41	5	5/8
42	z	Z
43	)	(
44	l	L
45	Vertical Rule	Vertical Rule
46	w	W
47	2	1/4

OVER

TABLE 5-5 TTS EQUIVALENCE CHART (NUMERICAL SEQUENCE) Cont'd

	Unshift	Shift
50	h	H
51	Em Leader	Em Leader
52	y	Y
53	6	3/4
54	p	P
55	0 (zero)	?
56	q	Q
57	En Leader	En Leader
60	o	O
61	9	&
62	b	B
63	TTS Upper Rail	TTS Upper Rail
64	g	G
65	;	:
66	Shift	Shift
67	Lower Rail	Lower Rail
70	m	M
71	Period	Period
72	x	X
73	l	1/8
74	v	V
75	Quad Center	Quad Center
76	Unshift	Unshift
77	Rub-out	Rub-out

SAMPLE HEADER SHEETS (PERRY FONT)

JOB CC HEADER SHEET **NO** RELEASE 2 **PAGE** 1 of 13

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  CODE CONVERSION HEADER SHEETS
2  ▵C1▵
3  ▵I▵ SCANNING PARAMETERS SET TO DEFAULT VALUES
4  ▵T09▵          Top Margin 0.9 inch
5  ▵L08▵          Left Margin .08 inch
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 5
2  -30-Δe = o33,*1,*3,*5,d100          end of take, 10 inches
3                                      of leader
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 3
2  Δ1s'' = o10,s21,s21                    open quotes
3  Δb'' = x,o10,x,s21,s21                 open quotes
4  ='' = s21,s21                          force open quotes
5  $'' = u21,u21                          force close quotes
6  Δi'' = y,o33,y,o13,s21,s21             indented open quotes
7  /// = o13                             em space
8  /.. = u51                              em leader
9  /Ss = o66                              force shift
10 /Uu = o76                              force unshift
11 1/8 = s73
12 1/2 = s25
13 3/4 = s53
14 1/4 = s47
15 3/8 = s03
16 5/8 = s41
17 7/8 = s17
18 $tΔe = o33,*1,*3,*5,d100               end of take, 10 inches
                                          of leader
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 3
2  /lΔe = o33,*1,*3                quad left
3  /cΔe = o75,*1,*3                quad center
4  /rΔe = o37,*1,*3                quad right
5  /vΔe = u11,*1,*2                add thin
6  /eΔe = o04,*1,*2                elevate
7  /mΔe = u45,*1,*2                vert. rule
8  /pΔe = u05,*1,*2                paper feed
9  /bΔe = u27,*1,*2                bell
10 ΔbΔaΔe = i                      ignore Beginning of page
11 ΔbΔzΔe = *5,d30                 3 inch leader for end of
12                                 page
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 2
2  -- = s15                          em dash
3  Δ1s' = o10,s21                    open quote
4  Δb' = x,o10,x,s21                 open quote
5  =' = s21                          force open quote
6  '' = u21,u21                      close quotes
7  $' = u21                          force close quote
8  Δi' = y,o33,y,o13,s21             indented single quote
9  // = o35                          en space
10 /. = u57                          en leader
11 /R = o77                          rubout
12 {Δe = *1,*2                       inhibit space
13 /l = o33                          quad left
14 /c = o75                          quad center
15 /r = o37                          quad right
16 /v = u11                          add thin
17 /e = o04                          elevate
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 2
2  /m = u45                                  vert rule
3  /p = u05                                  paper feed
4  /b = u27                                  bell
5  =Δe = o20,*1,*2                           return
6  /t = o00                                  tape feed
7  ΔbΔe = i                                  ignore blank lines
8  *1 = u63,u02,u44,u41,u67,u63,u14,u40       EXAMPLE OF A LONG
9  Δ,u55,u71,u53,u31,u55,u71,u53              CODE CONVERSION THAT
10 Δ,u67                                     NEEDED 2 CONTINUATION LINES
11 Δ COMMENT LINE - ALLOW SCANNING TABULAR MATTER
12 *T = *f,d0,*e,d30                    TURN OFF SPACE COMPRESSION
13 Δ COMMENT LINE                  AND EXTEND END OF LINE FOR TABULAR MATTER
14 *N = *f,d1,*e,d4                TURN ON SPACE COMPRESSION
15 Δ COMMENT LINE                  AND RETURN END OF LINE TO NORMAL
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

STRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 1
2  Δe = *0,*2                    Normal end of line
3  Δb = x,o10,x                  Normal beginning of line
4  Δi = y,o33,y,o13              indent for start of paragraph
5  Δ1s = o10                     spaceband
6  ' = u21                       close quote
7  @ = o01                       thin space
8  { = o63                       upper rail
9  } = o67                       lower rail
10 = = o20                       return
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSIONS OF LENGTH 1
2  A = s06
3  B = s62
4  C = s34
5  D = s22
6  E = s02
7  F = s32
8  G = s64
9  H = s50
10 I = s14
11 J = s26
12 K = s36
13 L = s44
14 M = s70
15 N = s30
16 O = s60
17 P = s54
18 Q = s56
19 R = s24
20 S = s12
21 T = s40
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSIONS OF LENGTH 1
2  U = s16
3  V = s74
4  W = s46
5  X = s72
6  Y = s52
7  Z = s42
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSIONS OF LENGTH 1
2  a = u06
3  b = u62
4  c = u34
5  d = u22
6  e = u02
7  f = u32
8  g = u64
9  h = u50
10 i = u14
11 j = u26
12 k = u36
13 l = u44
14 m = u70
15 n = u30
16 o = u60
17 p = u54
18 q = u56
19 r = u24
20 s = u12
21 t = u40
22 u = u16
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ▵D1▵ CONVERSIONS OF LENGTH 1
2  v = u74
3  w = u46
4  x = u72
5  y = u52
6  z = u42
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSIONS OF LENGTH 1
2  0 = u55
3  1 = u73
4  2 = u47
5  3 = u03
6  4 = u25
7  5 = u41
8  6 = u53
9  7 = u17
10 8 = u15
11 9 = u61
12 ! = s07
13 $ = u07
14 & = s61
15 ( = s43
16 ) = u43
17 + = o10
18 , = o31
19 . = o71
20 ? = s55
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ▵D1▵ CONVERSIONS OF LENGTH 1
2  : = s65
3  ; = u65
4  - = u23
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

SAMPLE HEADER SHEETS (COURIER FONT)

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  CODE CONVERSION HEADER SHEETS
2  ΔC1Δ
3  ΔIΔ SET SCANNING PARAMETERS TO DEFAULT VALUE
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 5
2  -30-Δe = o33,*1,*3,*5,d100        end of take, 10 inches of
                                     leader
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 3
2  /// = o13                          em space
3  /.. = u51                          em leader
4  /Ss = o66                          force shift
5  /Uu = o76                          force unshift
6  1/8 = s73
7  1/2 = s25
8  3/4 = s53
9  1/4 = s47
10 3/8 = s03
11 5/8 = s41
12 7/8 = s17
13 $tΔe = o33,*1,*3,*5,d100           end of take, 10 inches of
                                      leader
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 3
2  /lΔe = o33,*1,*3                quad left
3  /cΔe = o75,*1,*3                quad center
4  /rΔe = o37,*1,*3                quad right
5  /vΔe = u11,*1,*2                add thin
6  /eΔe = o04,*1,*2                elevate
7  /mΔe = u45,*1,*2                vert.rule
8  /pΔe = u05,*1,*2                paper feed
9  /bΔe = u27,*1,*2                bell
10 ΔbΔaΔe = i                      ignore beginning of page
11 ΔbΔzΔe = *5,d30                 3 inch leader for End of Page
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 2
2  -- = s15                          em dash
3  Δ1s' = o10,s31                    open quote
4  Δb' = x,o10,x,s21                 open quote
5  =' = s21                          force open quote
6  $" = u21,u21                      force close quotes
7  $' = u21                          force close quote
8  Δi' = y,o33,y,o13,s21             indented single quote
9  // = o35                          en space
10 /. = u57                          en leader
11 /R = o77                          rubout
12 [Δe = *1,*2                       inhibit space
13 /1 = o33                          quad left
14 /c = o75                          quad center
15 /r = o37                          quad right
16 /v = u11                          add thin
17 /e = u04                          elevater
18 Δ1s" = o10,s21,s21                open quotes
19 Δb" = x,o10,x,s21,s21             open quotes
20 =" = s21,s21                      force open quotes
21 Δi" = y,o33,y,o13,s21,s21         indented quotes
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 2
2  /m = u45                          vert rule
3  /p = u05                          paper feed
4  /b = u27                          bell
5  =Δe = o20,*1,*2                   return
6  /t = o00                          tape feed
7  ΔbΔe = i                          ignore blank lines
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSION OF LENGTH 1
2  Δe = *0,*2                      normal end of line
3  Δb = x,o10,x                    normal beginning of line
4  Δi = y,o33,y,o13                auto indent
5  Δ1s = o10                       spaceband
6  ' = u21                         close quote
7  @ = o01                         thin space
8  [ = o63                         upper rail
9  ] = o67                         lower rail
10 = = o20                         return
11 " = u21,u21                     closed quotes
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSIONS OF LENGTH 1
2  A = s06
3  B = s62
4  C = s34
5  D = s22
6  E = s02
7  F = s32
8  G = s64
9  H = s50
10 I = s14
11 J = s26
12 K = s36
13 L = s44
14 M = s70
15 N = s30
16 O = s60
17 P = s54
18 Q = s56
19 R = s24
20 S = s12
21 T = s40
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSIONS OF LENGTH 1
2  U = s16
3  V = s74
4  W = s46
5  X = s72
6  Y = s52
7  Z = s42
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  △D1△ CONVERSIONS OF LENGTH 1
2  a = u06
3  b = u62
4  c = u34
5  d = u22
6  e = u02
7  f = u32
8  g = u64
9  h = u50
10 i = u14
11 j = u26
12 k = u36
13 l = u44
14 m = u70
15 n = u30
16 o = u60
17 p = u54
18 q = u56
19 r = u24
20 s = u12
21 t = u40
22 u = u16
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSIONS OF LENGTH 1
2  v = u74
3  w = u46
4  x = u72
5  y = u52
6  z = u42
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSIONS OF LENGTH 1
2  0 = u55
3  1 = u73
4  2 = u47
5  3 = u03
6  4 = u25
7  5 = u41
8  6 = u53
9  7 = u17
10 8 = u15
11 9 = u61
12 ! = s07
13 $ = u07
14 & = s61
15 ( = s43
16 ) = u43
17 + = o10
18 , = o31
19 . = o71
20 ? = s55
21
22
```

DO NOT TYPE BELOW THIS LINE

INSTRUCTIONS (NOTES)

ALIGN FIRST CHARACTER UNDER THIS ARROW

```
1  ΔD1Δ CONVERSIONS OF LENGTH 1
2  : = s65
3  ; = u65
4  - = u23
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
```

DO NOT TYPE BELOW THIS LINE

SECTION 6.0

MAINTENANCE

6.1 INTRODUCTION

The maintenance procedures in this section are authorized or recommended for use by operating personnel to maximize continuing operation of the ALPHA. Procedures other than those described herein are not authorized without the written consent of the manufacturer, or direct supervision by factory field service representatives.

6.2 PAPER MALFUNCTIONS

6.2.1 DOUBLE PAGE FEEDS OR PAPER JAMS

When a page enters the scanner improperly due to folding or deformation; or a double page enters the scan area, ALPHA stops and sounds a warning buzzer. The LED Display flasher an error message consisting of a bell symbol followed by P2. To clear the machine, press the RESET toggle which silences the audible warning. Loosen the cover lock nuts and raise the top cover. When the top cover is up the upper and lower rollers are parted. Remove the paper by hand, drawing it toward the rear. The paper can be straightened and restored to the top of the stack. When the cover is lowered and tightened the pages should enter and scan satisfactorily provided they are not damaged.

6.2.2 STACK FEEDER AND READ HEAD PAPER JAMS

ALPHA will recognize the presence of a stack of copy in the stack feeder. However, if it fails to deliver sheets into the reader it will halt scanning and alert the operator by a buzzer. The reason for the stoppage will be indicated on the LED display which will flash the bell symbol followed by P3 (See Table 3-3.) In a similar manner, if after scanning a page, the paper handler cannot eject the sheet, ALPHA will stop scanning, sound a buzzer, and display the bell symbol on the LED Display followed by P4. To clear the jam, proceed as follows:

A. Loosen the two knurled screws (Figure 3-4) fastening the console assembly to the lower cabinet.

B. Slowly tilt the control console assembly straight up from the front until it is in the vertical position and stops.

C. The paper path is now exposed and the jammed paper should be accessible for removal. If the paper removed from the stack feeder assembly has corners missing this paper is still in the stack feeder. To remove paper from the interior of the stack feeder proceed as follows:

1. Loosen the locking screw (Figure 3-4) at the center of the stack feeder base.

2. Carefully slide the stack feeder out from the two alignment pins and onnector located at the rear.

3. Remove the four corner screws from the stack feeder base plate and remove the cover.

4. Carefully remove any paper from the inside of the mechanism with long tweezers or any other suitable tool.

5. After the paper is removed, replace the cover and carefully slide the assmebly back on to the alignment pins and connector.

6. Fasten the stack feeder in place with its knurled locking screw.

6.3 ALARM FUNCTIONS

6.3.1 PAPER TAPE WARNING

ALPHA will sound a warning buzzer when the paper tape supply in the tape punch diminishes below a certain radius on the reel. This setting is adjusted by the operator who determines at which point the microswitch on the tape reel rider will trip. The alarm sounds when the ALPHA reaches the end of a page. The operator can disable the buzzer and continue scanning and punching tape with the remaining footage by pressing the CONTINUE toggle. As another page ends the buzzer will sound again. The operator can press the CONTINUE commands as often as the tape supply lasts. Each time the buzzer sounds the LED Display will flash (□02).

6.3.2 DISCONNECT SIGNAL

If ALPHA is scanning with the OUTPUT switch on but the peripheral device is disconnected or OFF a ◘01 will appear in the LED Display and the alarm will sound. The operator has a choice of energizing the peripheral device for output or switching the output toggle to OFF. If while scanning, the peripheral is turned OFF, the ALPHA will cease scanning, and the read head will move full LEFT. The LED Display will flash the last three characters scanned. The page should be rescanned in its entirety, as several output characters may be lost when continued scanning is attempted with the peripheral turned back on.

6.4 UNEXPLAINED STOPPAGE - CIRCUIT OVERLOAD

6.4.1 FUSE PANEL

In the event of an unexplained stoppage of ALPHA or any of its subassemblies, determine if a fuse is blown. To access the fuse panel, remove the paper hopper at the reer of the unit by sliding it upward and out of the holding slots. Depress the rear door lock and open the back hinged door panel; unlock the inner hinged circuit panel and swing it to the left. The fuse panel is mounted on a vertical board at the base of the cabinet. Six fuse holders are contained on the board, five active and one spare position. (See Figure 6-1.)

WARNING

Before attempting to remove any fuse or do any examination of components in the unit, REMOVE THE POWER PLUG.

Three additional fuses are provided for the ALPHA circuitry; one adjacent to the Data Save Panel and two on the lower, rear apron of the cabinet. Refer to Table 6-1 for the fuse directory.

NOTE

Check rating of each fuse as it is being removed in order to avoid mix-ups during replacement.

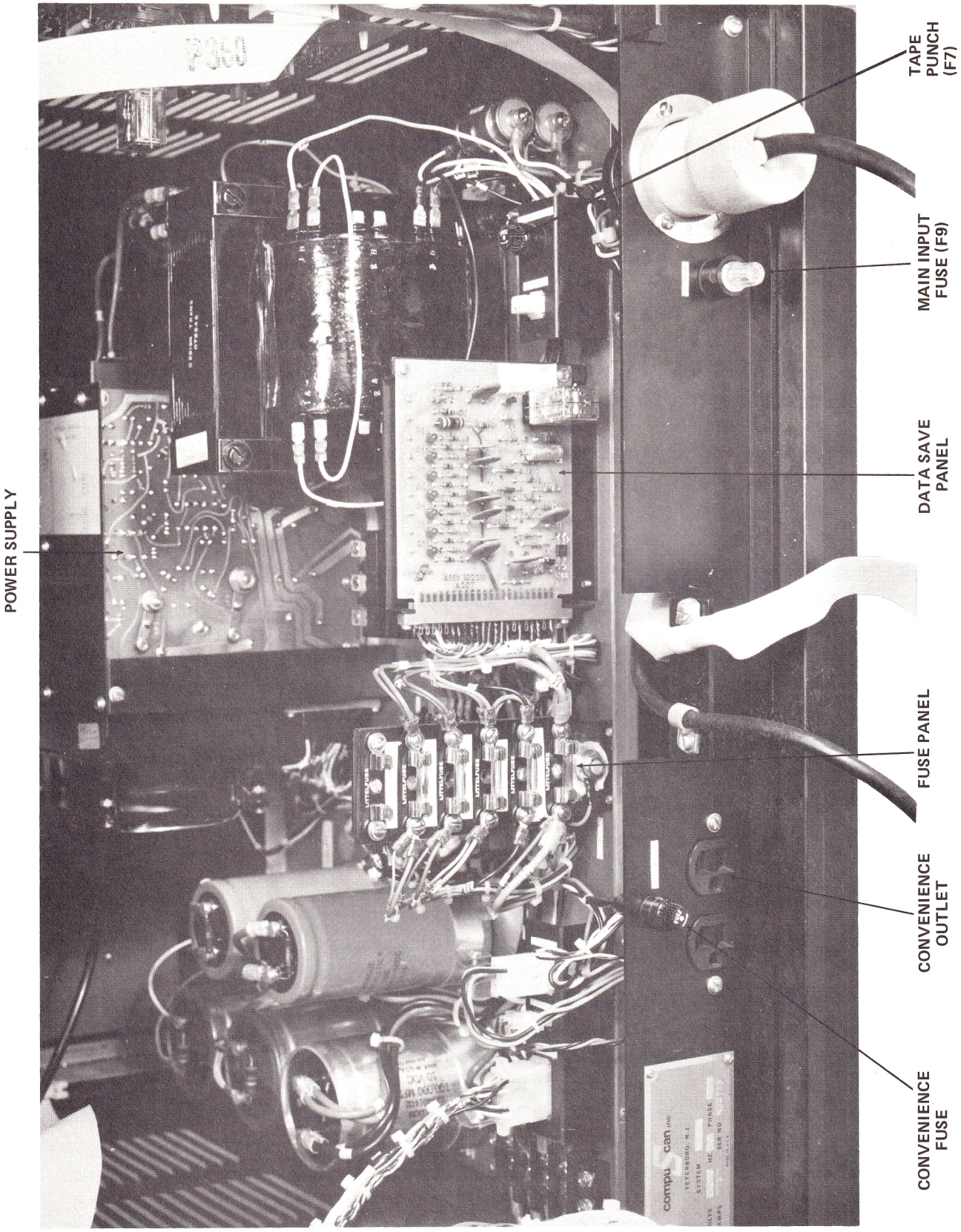


FIGURE 6-1. FUSE AND DATA SAVE PANEL

6.4.2 DATA SAVE CIRCUIT PANEL

The data save circuit panel contains seven (7) red indicators (LED's) which glow during normal ALPHA operation. The first LED at the left (RH LAMP) indicates the power supply to the read head (RH) lamp. This indicator DSI is off when the read head lamp is off during normal operations. When any of the other LED's (DS2 through DS7) are off, the power supply associated with that LED circuit has been interrupted. (Refer to Table 6-1 for a list of fuses versus LED circuits.)

TABLE 6-1 FUSE & DATA SAVE - CIRCUITS

FUSE PANEL			DATA SAVE PANEL
Desig.	Type	Circuit	Designations
F1	Spare	-	DS1 (RH LAMP)
F2	10A	- Supply	DS4 (-12V), D5 (-9V)
F3	10A	+ Servo	DS2
F4	10A	- Servo	DS3
F5	5A	8 VAC	-
F6	15A	+ Supply	DS6 (+5V), DS7 (+12V)
F7	3 ASB	Test Box and Tape Punch	-
F8	3 ASB	Convenience Outlet	-
F9	10 ASB	AC Input	-

If a fuse has blown, replace it on the fuse panel (replace input connector). The LED should go on when the unit is powered-up, indicating a restored power supply. There is an intergral power supply protection circuit which can shut off power before a fuse is blown. If the suspected fuse is intact, set the POWER switch to OFF, wait one minute then POWER - ON. This allows the integr power supply circuit to reset itself.

6.5 LUBRICATION

ALPHA is permanently lubricated at the factory. No additional lubrication should be attempted by the operator.

6.6 CLEANING

6.6.1 EXTERIOR SURFACES

Exterior surfaces may be cleaned by rubbing with a cloth moistened with a detergent solution. Do not allow the liquid to run or drip into the machine. Similarly, spilling liquids or beverages on the machine must be scrupulously avoided.

6.6.2 BELTS AND ROLLERS

Periodically the stack feeder rubber belts and paper handler assembly rollers acquire a buildup of waxes and/or sizing from the paper stock. To remove this buildup of foreign matter, proceed as follows:

A. Stack Feeder Assembly.

1. Set the POWER switch on the Format Panel to ON.

2. Toggle the START switch on the Control Panel.

3. Moisten a guase pad or cloth with alcohol.

4. As the stack feeder operates, hold the pad against each of the rotating rubber belts one at a time.

CAUTION

Do not allow the cloth or pad
to be pulled into the mechanism.

B. Paper Handler Assembly.

1. Loosen the two knurled screws (Figure 3-4) fastening the control console assembly to the lower cabinet base.

2. Slowly tilt the control console straight up from the front until it is in the vertical position and stops. The rollers on the upper and lower platten are now exposed.

3. Using a pad moistened with alcohol clean the rollers.

4. Slowly lower the control console assembly to the cabinet and fasten in place with two knurled screws.

6.6.3 PAPER VIEWER MIRRORS

If the paper viewer window or mirror(s) become dirty they should be cleaned with a lens tissue or lint free cloth. In some cases it may become necessary to lightly moisten the cleaning cloth with a commercial cleaner (Windex) to remove accumulations of foreign matter. (Refer to paragraph 6.7.1 to access the interior of the control console.

CAUTION

Always handle the mirrors by the metal frames; this will keep oil from the fingers off the reflecting surfaces.

6.7 REPLACEABLE PARTS

Many of ALPHA's replaceable spare parts are easily replaced without the use of tools and most of the others can be replaced with common tools. The following procedures will describe only the replacement of those parts where replacement is not obvious through inspection or where access to a part requires specific explanation.

CAUTION

Replacement of parts other than those described in this section should not be attempted except by qualified field service representatives.

6.7.1 ACCESSING THE PAPER HANDLING ASSEMBLY

Many of the parts that can be replaced are located on the interior of the paper handling assembly. To access these parts, the upper platten must be released from the console assembly cover. Proceed as follows to access replaceable parts in this area.

A. Loosen the two knurled screws (Figure 3-4) fastening the control console assembly to the lower cabinet base.

B. Slowly tilt the control console assembly (1, Figure 6-2) straight up from the front until it is in the vertical position and further travel is stopped.

C. Loosen the single stack feeder assembly retaining screw and carefully pull the unit forward and off the cabinet.

D. Remove the 4 screws fastening the paper handler grill in place and remove grill panel.

E. Remove the two 1/4-20 socket head cap screws (3, Figure 6-2), washers, lockwashers and shims (if any) fastening the upper platten (4) to the control console cover (5). (Do not lose the washers or shims.)

F. Separate the top cover from the upper platten to allow cover to move back until it is stopped by the two brace bars.

G. Firmly grasp the upper platten and push it down until it butts with the lower platten (6). DO NOT RELEASE FIRM PRESSURE.

H. Engage the two hooks (7) on the lower platten with the small protruding studs (8) on the upper platten. Tighten the hooks in place with the pivoting screws. RELEASE PRESSURE on upper platten.

CAUTION

It is imperative to maintain a firm grasp on the upper platten when releasing it. This restraining action will prevent

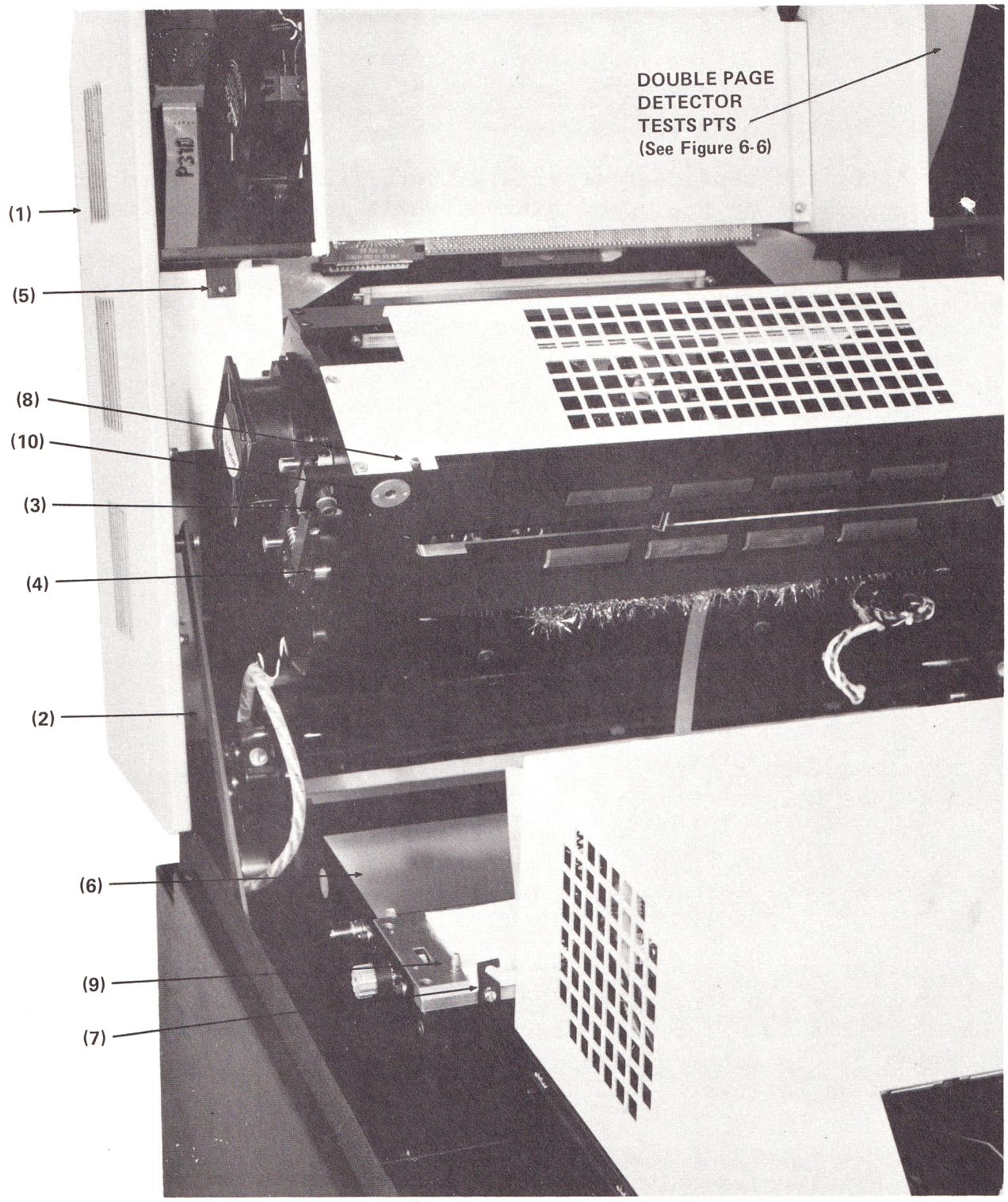


FIGURE 6-2. ACCESSING THE PAPER HANDLER ASSEMBLY

physical damage to the ALPHA through platten overtravel caused by unrestrained spring tension.

I. After the replaceable part is installed apply a firm downward pressure on the upper platten while releasing the two retaining hooks.

J. Allow the upper platten to move upward while maintaining downward pressure until it reaches the point where the springs stop furhter movement.

K. Move the upper platten and console cover together until the tab (5) on the cover and hole in the platten line up. Replace and tighten the 1/4-20 socket head cap screw (3) (with washer lock washer and shims (if any).

L. Slowly lower the control console assembly to the cabinet and fasten in place with two knurled screws.

NOTE

When the console cover is closed, two small studs (9) on the lower platten (6) align and close with washers (10) in the upper platten.

6.7.2 READ HEAD DRIVE CABLE

If either one of the two flex cables driving the read head break, both cables should be replaced. (Refer to Table 7-1, Replaceable Spare Parts kit for the correct part number.) Replacing these cables can be accomplished quickly and simply with ordinary tools. Proceed as follows:

A. Perform steps A through H of paragraph 6.7.1, Accessing the Paper Handler Assembly.

NOTE

Carefully observe the way each cable is terminated on the large main drive pulley.

B. Carefully remove both cables keeping the end (threaded) hardware. Discard the cables.

C. Move the read head assembly to the extreme left hand side of its travel.

D. Thread the 5-40 nut removed from the discarded left side cable up approximately 3 threads.

E. Insert the first cable (Ball end first) through the left hand side plate of the Paper Handler Assembly.

CAUTION

When making cable tension adjustments DO NOT allow the cables to twist.

F. Run this cable around the top groove of the dual pulley assembly (A, Figure 6-3), over pulley assembly (B) and anchor at the front of the main drive pulley (C).

G. Turn the main drive pulley counterclockwise to windup the cable on the pulley drum.

H. Replace the spring, cup, washer, and 5-40 nut on the right hand drive cable. Thread the nut up approximately 3 threads.

I. Insert the cable through the right hand side plate of the Paper Handler Assembly.

J. Thread the cable around the lower groove of dual pulley assembly (A, Figure 6-3), around pulley (D) and anchor at the rear of main drive pulley (C). If the cable is short of the anchor point, push in on the spring loaded cup to gain the extra cable required to make the anchor.

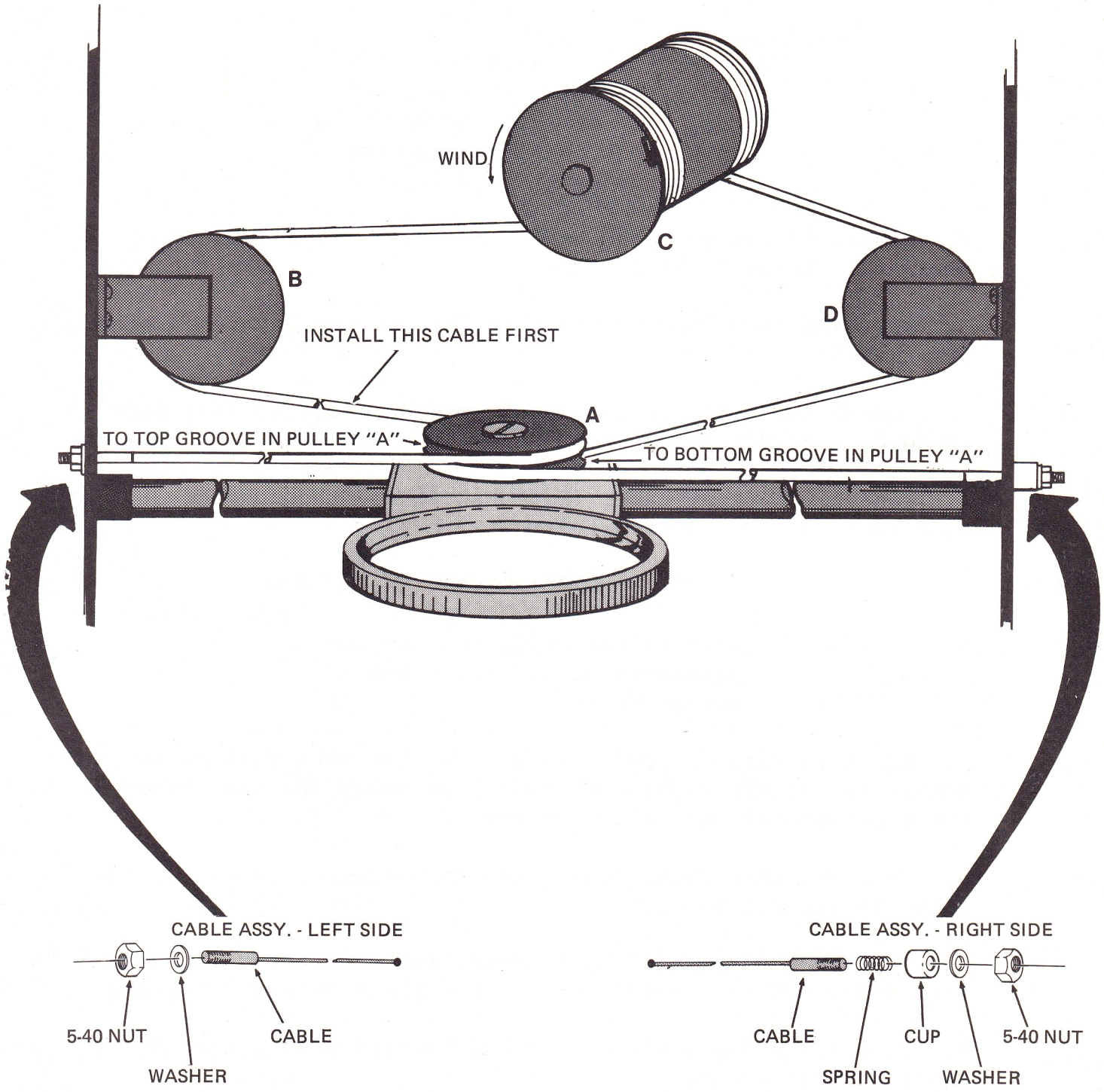


FIGURE 6-3. READ HEAD CABLE DRIVE DIAGRAM

K. Center the read head assembly on the carriage rails. (Read head should be directly in front of the main drive pulley (C, Figure 6-3).)

L. Using the thumb, press down on the upper cable (one at a time) on both sides of the main pulley. No excessive pressure should be required to cause the spring tension cap to move into the right hand side plate of the Paper Handler Assembly.

6.7.3 READ HEAD LAMP

If the tungsten Halogen lamp in the read head assembly should go out, proceed as follows to replace it. (Refer to Table 7-1, Replaceable Parts List for the correct part number.)

A. Loosen the center knurled screw fastening the paper stack feeder to the paper handler assembly frame. Carefully pull out and remove the paper stack feeder.

B. Perform steps A through H of paragraph 6.7.1, Accessing the Paper Handler Assembly.

C. Tilt the adjustable mirror to the vertical position and cover if possible.

D. Remove the four 8/32 socket head cap screws fastening the fixed mirror assembly (Figure 6-4) in place. Carefully remove the mirror and temporarily place a piece of cloth or paper over the mirror to prevent it from being scratched or damaged.

E. Carefully remove the two electrical connectors on the lamp.

F. Remove the three screws and washers, fasten the lamp in place with the lamp retainer, three screws and washers.

G. Replace the new lamp in the read head assembly and fasten in place with the lamp retainer, three screws and washers.

H. Scan a sheet of Text. If the machine scans normally, consider the replacement accomplished. However, in order to insure optimum results bring the replacement to the attention of a field service representative when the machine is being serviced. He will check the alignment of the lamp for optimum intensity and focus.

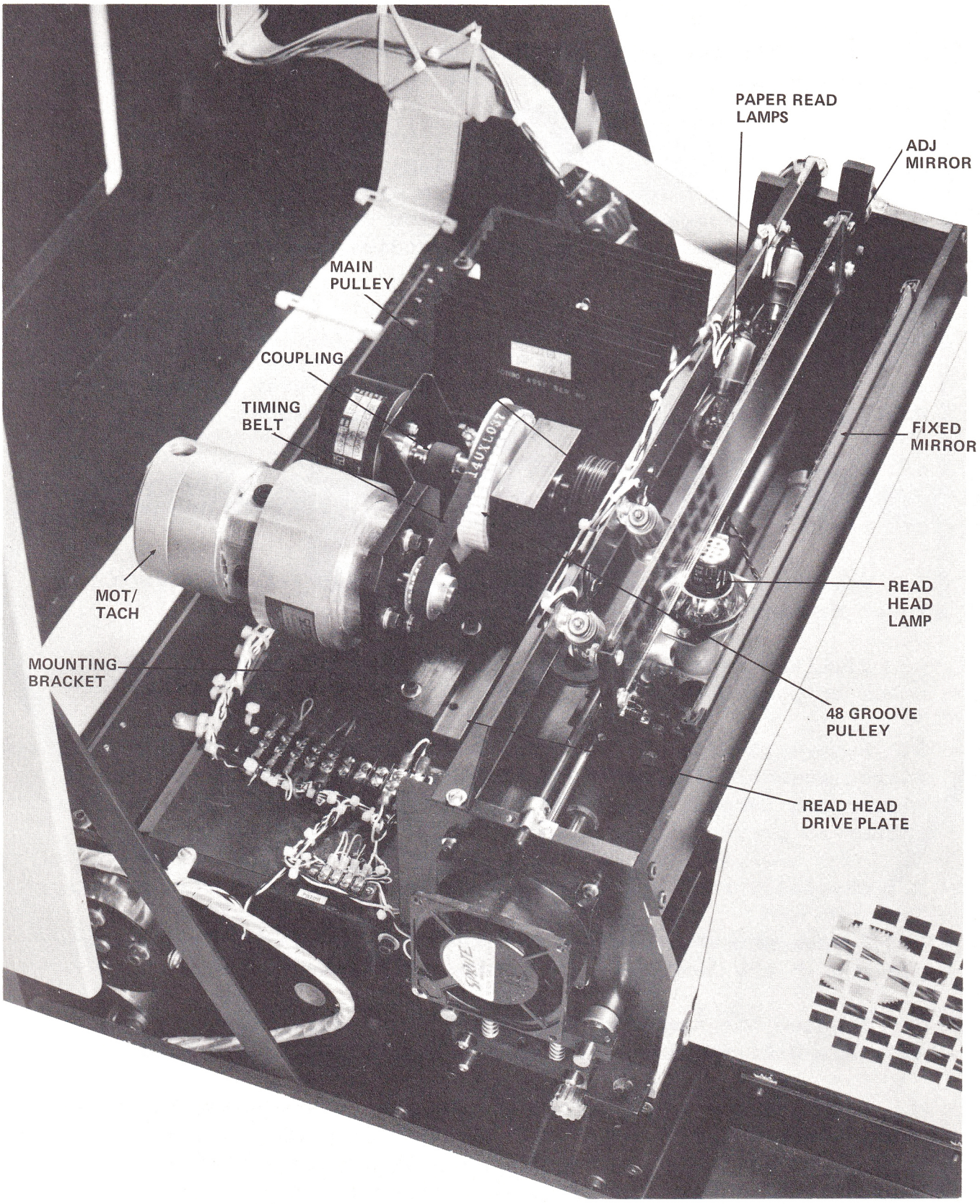


FIGURE 6-4. LEFT SIDE VIEW - UPPER PLATTEN

I. If the machine experiences unexplained stoppages during scanning, immediately after the lamp is replace some adjustment is required. Loosen the screws and rotate the lamp or move it left or right, up or down as required to obtain normal scanning. If after a reasonable period of trial and error adjustment proper scanning cannot be obtained, call your field service representative.

J. Replace the fixed mirror assembly and fasten in place with four retaining screws and washers. Remove covering material from adjustable mirror.

K. Replace the Stack Feeder Assembly and fasten in place.

L. Perform steps I through L of paragraph 6.7.1.

6.7.4 HORIZONTAL ENCODER

A. Remove the five encoder leads from the terminal block adjacent to the encoder; making a diagram of the location and color coding of each wire.

B. Remove the plastic cable strap securing the encoder cable to the other wire.

C. Using an allen wrench, loosen the set screws in the copuling securing the encoder shaft. These screws are knurled cup point set screws and must never be replaced with standard set screws.

D. Remove the four screws and washers fastening the encoder bracket to the upper platten. Note if there are any shims under the mounting bracket flange, then carefully remove the bracket and motor assembly.

E. Remove the four screws, lockwashers and flat washers fastening the encoder to the bracket. DO NOT DISCARD the encoder. It should be sent back to CompuScan for a credit toward the new encoder.

NOTE

When removing the defective encoder lightly mark the bracket to indicate the position of the encoder cable.

F. Replace the new encoder* on the frame and fasten in place with the hardware removed in step E.

G. Replace the encoder bracket on the upper platten making sure that the encoder shaft is inserted into the coupling. Before tightening the coupling setscrews (2) and bracket hardware make sure that the encoder shaft and coupling are as concentric as possible and all shaft components are in a straight line. Tighten all hardware.

H. Replace the encoder wires on the terminal block in accordance with the diagram of Step A.

I. Using the plastic cable strap removed in Step B, strap the encoder cable to the adjacent wires.

6.7.5 VERTICAL ENCODER

A. Remove the five encoder leads from adjacent terminal block (TB105). Make a diagram of the location and color coding of each wire.

B. Remove the two plastic cable straps securing the encoder cable to the adjacent wire run.

C. Remove the four screws and washers fastening the encoder mount plate to four standoffs on the paper handler assembly right side plate.

D. Use a 1 inch allen wrench to loosen the set screws on the gear mounted to the encoder shaft. Remove the gear.

* Not contained in replaceable spare parts kit.

E. Remove four screws, lockwashers and flat washers fastening the encoder to the mounting plate. DO NOT DISCARD the encoder. It should be sent back to CompuScan for credit.

NOTE

When removing the defective encoder, lightly mark the mounting plate to indicate the position of the encoder cable.

F. Replace the new encoder* on the mounting plate and fasten in place with hardware removed in Step E.

G. Replace the antiback lash gear on the encoder shaft but do not fasten in place with set screws at this time.

H. Replace the mounting plate on the four standoffs with the hardware removed in Step C, but do not tighten yet.

I. Hold the split gear closest to the paper handler assembly in place while preloading the front gear two teeth in a clockwise direction. Maintaining the gear preload, while engaging the gear with the one above it. Tighten the four screws on the mounting plate.

J. Fasten the antiback lash gear to the motor shaft with the two set screws.

6.7.6 READ HEAD RIBBON CABLE

To replace the read head flexible ribbon cable proceed as follows:

CAUTION

Do not attempt any repairs other than soldering a terminal on the cable assembly.

* Not contained in replaceable spare parts kit.

A. Perform steps A through H of paragraph 6.7.1, Accessing the Paper Handler Assembly.

B. Remove and tag the four connector plugs from terminal board (T13102) which forms one end of the ribbon cable assembly. (See Figure 6-5.)

C. Remove and tag the two connections to the ribbon cable terminal board located on the read head. Remove the single screw fastening this terminal board in place.

D. Remove the three screws and washers fastening the terminal board at the other end of the ribbon cable to the right side plate: Remove and return the entire ribbon cable assembly to CompuScan for evaluation.

E. Replace the new ribbon cable* terminal boards at the locations specified in steps C and D.

F. Replace all electrical connections in accordance with the tagging in Steps B and C. The four connector plugs from the new terminal board T13102 should be bent at the same angle as the old plugs to prevent them from being damaged by the top cover.

G. Move the read head from left to right and observe that the ribbon cable forms properly on the hook and loop tape fastener.

6.7.7 HORIZONTAL DRIVE - TIMING BELT

To replace a damaged or broken horizontal drive cogged belt, proceed as follows:

A. Scribe the position of the motor/tachometer (M/T) mounting bracket on the read head drive plate. (See Figure 6-4.) The accuracy of the scribing is important to the correct tensioning of the replacement belt.

* Not contained in replaceable spare parts kit.

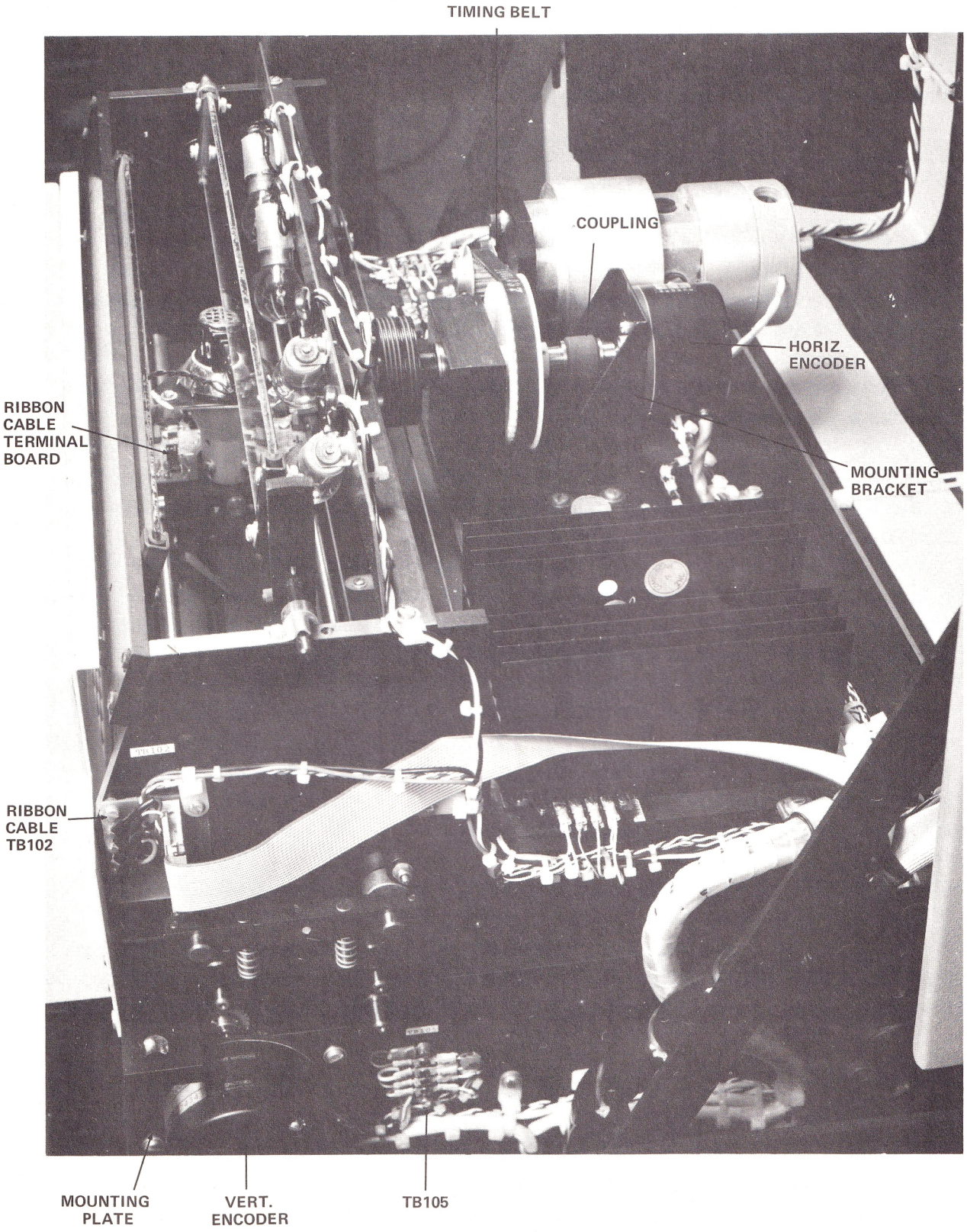


FIGURE 6-5. SERVO MOTORS

B. Loosen the two hex head screws fastening the bracket to the drive plate and move the bracket to the extreme right side of the elongated mounting holes.

C. Remove the damaged cogged belt from the M/T pulley.

D. Loosen the two set screws in the coupling which fasten the shaft of the 48 groove pulley in place.

E. Remove the plastic strap securing the horizontal encoder cable to the adjacent wire runs.

F. Remove the four screws and washers fastening the encoder bracket to the drive plate.

G. Carefully move the encoder bracket back until the coupling clears the large pulley allowing sufficient space to remove the defective belt and install the new one.

H. Slip off the defective belt and install the new one. (Refer to the replaceable spare parts kit in Table 7-1 for the part number of the belt.)

I. Move the encoder bracket forward until the encoder shaft enters the flexible coupling. Before tightening the coupling setscrews (2) and bracket hardware make sure that the encoder shaft, coupling and drum shaft are aligned and are as concentric as possible. Tighten all hardware.

J. Replace the plastic cable strap removed in Step E.

K. Place the new belt on the M/T pulley and move the M/T bracket back to the position scribed in Step A. Tighten the two hex head screws. Installation of a new timing belt is now complete.

NOTE

If there is a variation in the size of the new timing belt it may be necessary to adjust the M/T bracket slightly to obtain the correct amount of belt deflection.

L. Run the machine and check that the new belt rides as shown in Figure 6-4.

6.8 ADJUSTMENT PROCEDURES

6.8.1 DOUBLE PAGE DETECTOR

The double page detector circuit is provided to compensate for the variations in paper densities. The setting made a the factory should be adequate for most papers. However, if ALPHA is not providing a warning buzzer and/or LED display message (P2) for double page feeds, an adjustment of the detector circuit is required. The only tools and instruments required for this adjustment are a multitester (Simpson 260 or equivalent) and screwdriver (flathead 1/8 - 1/4 inch wide). Proceed as follows:

A. Toggle the RESET switch located on the Control Panel.

B. Loosen the two console cover retaining screws and raise the top cover.

C. The double page detector potentiometer and test points (TP1 and TP2) are located on the reverse side of the Control Panel. (See Figures 6-2 and 6-6.)

D. Set the multimeter on the 10 volt scale, DC. Carefully connect the common lead to TP1 (GND) and the positive lead to TP2.

E. Without paper being present in the stack feeder the multimeter should read approximately 0$\pm$ VDC. If not, adjust potentiometer.

F. Insert a single sheet of paper in the stack feeder. Multimeter should read approximately 2$\pm$ VDC. If not adjust potentiometer.

G. Insert two sheets of paper in the stack feeder. Multimeter should read approximately 4$\pm$ VDC. If not adjust potentiometer.

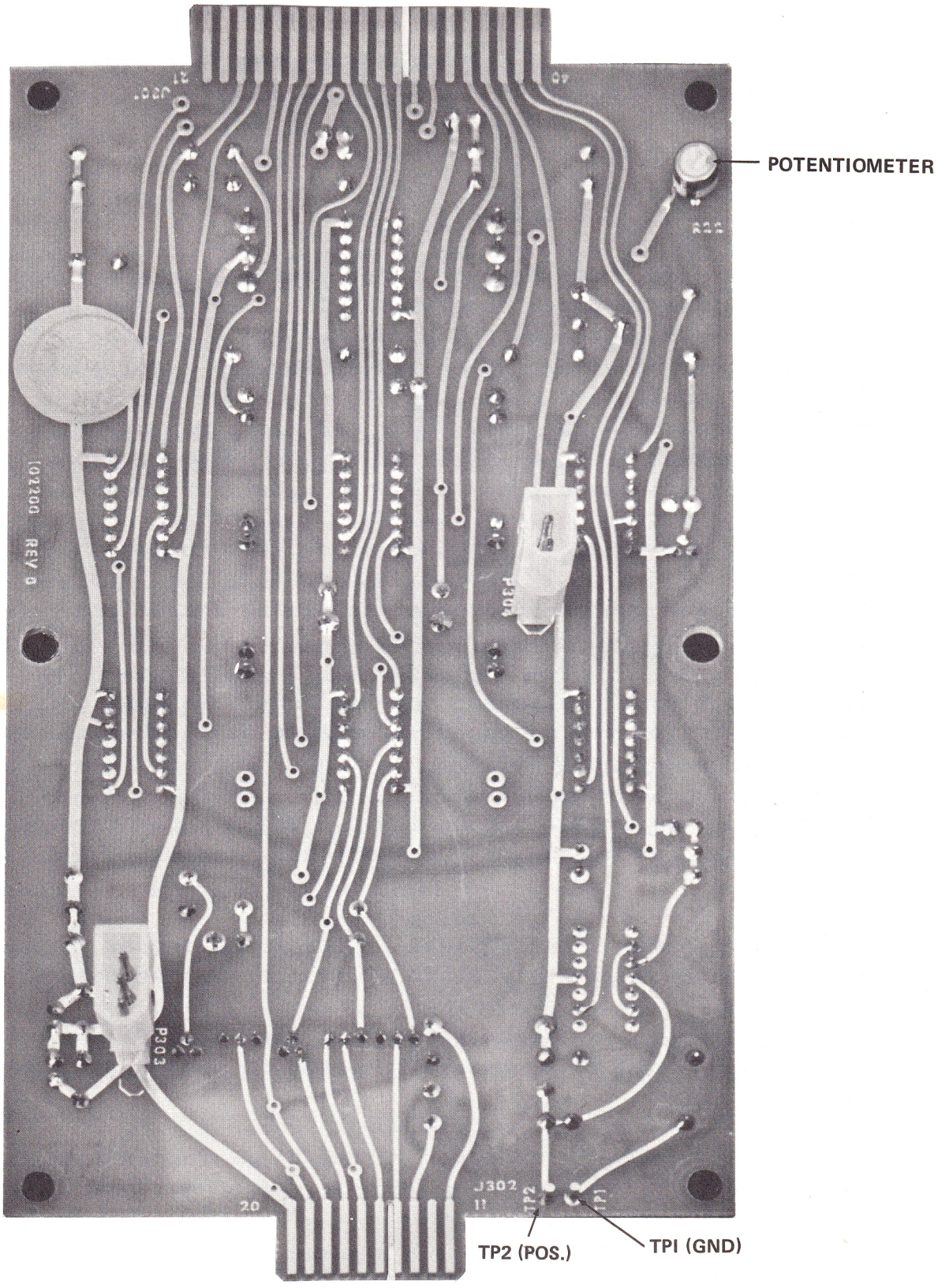


FIGURE 6-6. DOUBLE PAGE DETECTOR TEST POINTS

H. If the potentiometer cannot be adjusted to provide the specified voltage, attempt to scan a page (it may work even if the adjustment is out of tolerance). If the circuit still does not work, turn the DOUBLE DET switch on the Format Panel to OFF. Do not attempt any further adjustments. Call the CompuScan Field Service Representative in your area.

CAUTION

Be extremely careful that the two connectors do not short.

I. Carefully remove the test leads and close the console cover. The double page detector adjustment has now been completed.

6.8.2 READ HEAD AND/OR ROLLER DRIFT

The scan head and paper roller servo drift are adjusted for zero at the factory. However, it is possible to develop some drift after extended usage of the machine. The drift is noticeable after the ALPHA has been RESET as a movement of the rollers and/or movement or chattering of the scan head. To correct this proceed as follows:

A. OPen the door at the rear of the cabinet to access the microprocessor printed circuit board.

B. Allow the machine to warm up for approximately 5 minutes before making any adjustments.

NOTE

The actual adjustment of the drift can be accomplished in a few minutes. However, for the scan head adjustment two people would bypass the trail and error method one to make the adjustment, the other to observe the movement of the head.

C. In the lower left hand quadrant of the board are two trimpots labeled VERTICAL and HORIZONTAL. (See Figure 6-7).

D. Toggle the RESET switch to initialize ALPHA.

E. Using a small screwdriver with a minimum of pressure, adjust the trimpot (VERTICAL - rollers, HORIZONTAL - read head) until the movement is zero.

F. Close the rear cabinet door and the adjustment is complete.

6.9 TROUBLESHOOTING

The material contained in Table 6-2,the "Troubleshooting Guide" will help the user of an ALPHA to localize malfunctions, effect certain repairs and enable more meaningful communication between the user and field service representative during service related telephone conversations. A logical flow os symptoms, probable causes and remedies is listed in Table 6-2. Therefore, if one symptom has a few probable causes, the most probable will be disucssed first and so on down the line. A minimum level of technical proficiency is assumed in all of the procedures in this section. However, it is assumed that the user has a basic understanding of the general principles of operation. This latter point is especially important as no troubleshooting procedure can be so complete in itself so as to offer a complete listing of all possibilities.

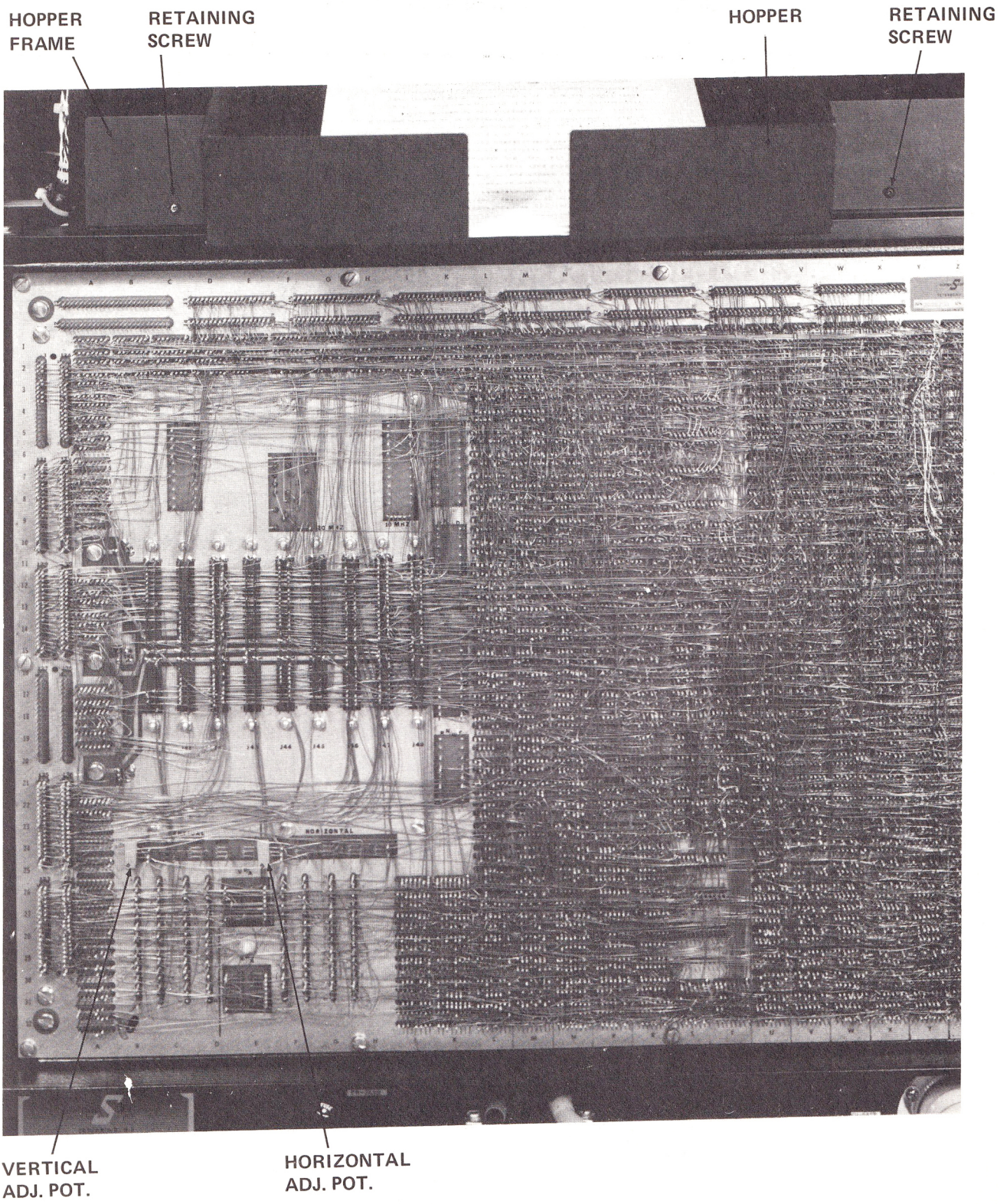


FIGURE 6-7. DRIFT ADJUSTMENT POTENTIOMETERS

TABLE 6-2. TROUBLESHOOTING GUIDE

Symptom	Probable Cause	Remedy

This Table to be supplied at a later date.

SECTION 7.0

SPARE PARTS KIT

7.1 GENERAL

This section contains a list of the components in the basic spare parts kit for the ALPHA. These parts have been selected to be replaced by the operator in some instances or a person designated (CompuScan trained) to perform minor maintenance procedures. Through the use of the troubleshooting procedures in Section 6.0 and the components in the spare parts kit, machine down time should be minimized. Table 7-1 provides a description of the replaceable parts in the kit, including the CompuScan and commercial part numbers and quantity of each item.

TABLE 7-1 REPLACEABLE SPARE PARTS KIT

Description	CompuScan Part No.	Commercial Part No.	Qty
Belt	20014	140XL037	1
O Ring	20286	AS568-117	1
O Ring	20823	2-11	1
O Ring	20287	0-1318	1
O Ring	20819	0-1041	1
O Ring	20822	0-1228	1
O Ring	20821	0-1223	1
O Ring	20820	0-1044	1
Belt	20013	S-514AG	1
Belt	20776	6R6-089018	1
Belt	20777	6R6-110018	1
Sensor	100919	----	1
I.R. Source	100734-1	----	1
Detector	100734-2	----	1
Relay R10-E1-X2	101099	----	1
Switch Toggle	20579	7402K3	1
Switch, Toggle	20576	7101C	1
Switch, Toggle	20577	7105C	1
Lamp	20254	ELT	1
Lamp	20255	93	2
Fuse, 15 Amp F.B.	-----	15 Amp	1
Fuse, 10 Amp F.B.	-----	10 Amp	1

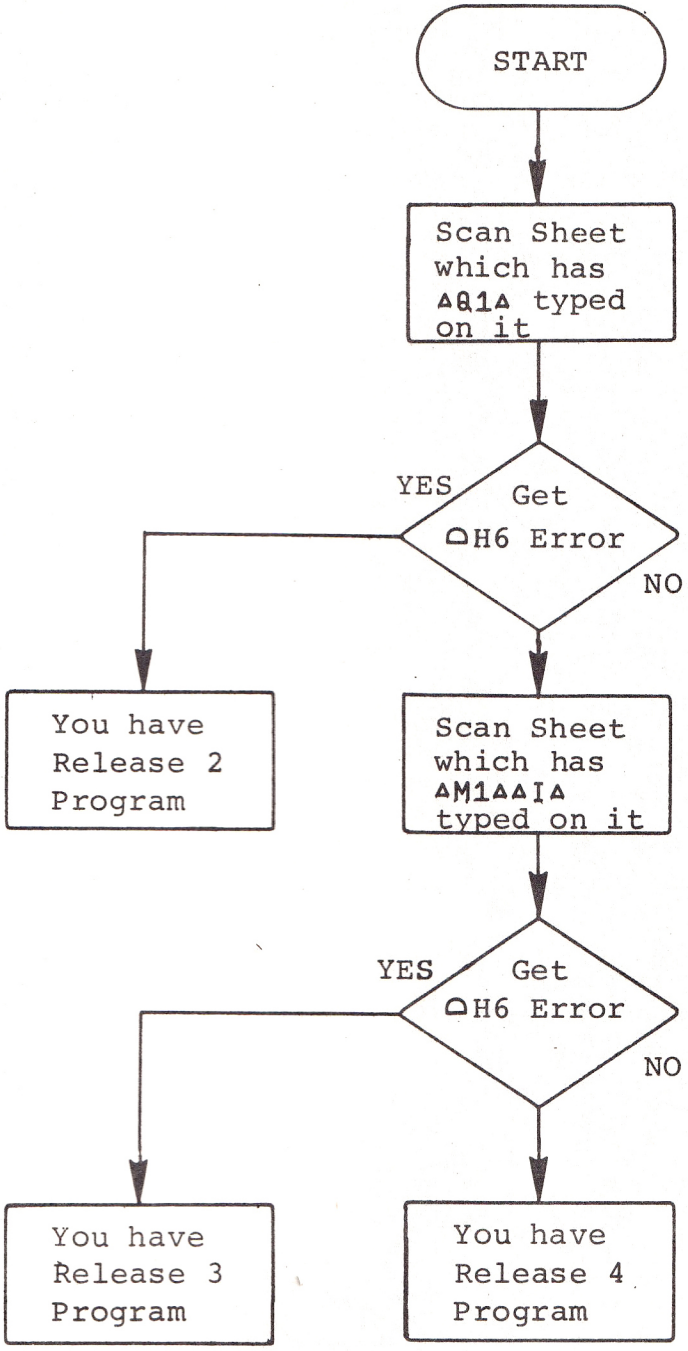
TABLE 7-1 REPLACEABLE SPARE PARTS KIT (Cont'd)

Description	CompuScan Part No.	Commercial Part No.	Qty
Fuse, 4 Amp F.B.	-----	5 Amp	1
Fuse, 3 Amp F.B.	-----	3 Amp	1
Fuse, 2 Amp F.B.	-----	2 Amp	1
Solenoid	20539	28 Cont. 12 DC	1
Brake	20018	16ECA-10C-4-4-12	1
Clutch	20092	14EAC-10C-4-12	1
Cable Assembly	101659	----	1
Wire, Jumper Kit	102000	----	1
Wrench, Allen (120Hex-E-Case)	102001	----	1
Resistor, Kit Power	10202	----	1
Fuse, 3 Amp, S.B.	-----	3 Amp	1
Fuse, 10 Amp, S.B.	-----	10 Amp	1
Spring, Extension	20558	LE-016A001MW	1
Switch	20580	E51-60E	1
Wrench, 1/16" thick, 1/4" open end	102004	----	1
Clutch, Aligner tool	101619	----	1

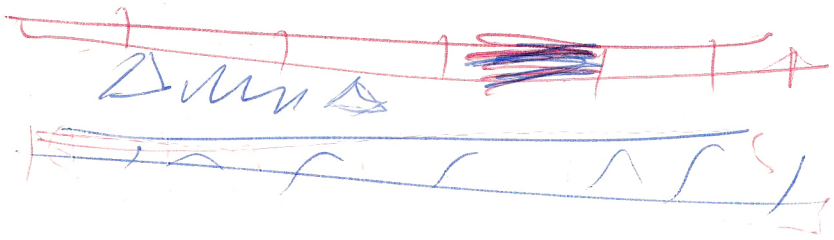
APPENDIX

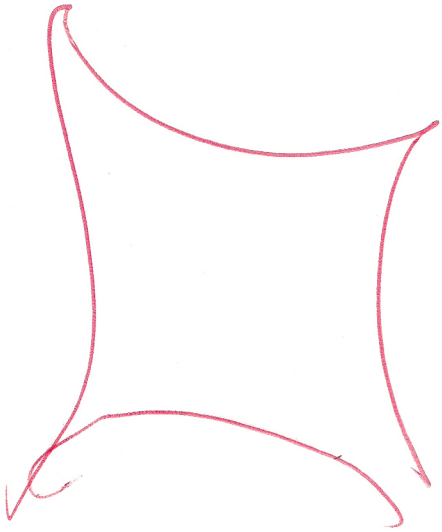
ALPHA PROGRAM SELECTION GUIDE

PROGRAM IDENTIFICATION	TABLES	OUTPUT	MARGIN MARKUP FEATURES	SCAN PARAMETERS	EXTRA CODES AVAILABLE	FORMSCAN FEATURES
Release 2 (Standard)	1	Punch Only	None	Yes	1,2,2.5K	No
Release 3 (Dual Output)	1	Punch & On-Line	None	Yes	1,2,2.5K	No
Release 4 (Margin Markup)	4	Punch & On-Line	Yes	Yes	1,2K	No
Release 5 (FormScan)	4	Punch & On-Line	Yes	Yes	Yes	Yes



HOW TO DISTINGUISH ALPHA PROGRAMS





for full details
demonstration,
write or call

compuScan INC.

900 Huyler Street
Teterboro, N.J. 07608
(201) 288-6000